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NEWER CLINICAL SIGNS OF EARLY RICKETS *

C. ULYSSES MOORE, M.D.

PORTLAND, ORE.

Nearly three centuries ago, rickets was recognized and very ably described by a group of English physicians, Glisson, Bate and Regenmarter.[1] The first recorded death from this disease was in 1630.[2] Boötius,[3] in 1649, writing in Latin, said of rickets, "This malady is a sore affection in many thousand infants." An equal prevalence of rickets today warrants our interest in it, while our newer methods of study enable us to recognize even the milder cases of the disease. The Pacific Northwest, with its great number of cloudy days, seems a very fertile soil for this infantile dyscrasia.

Experimental evidence indicates that clinical manifestations of the disease occur first in the nervous system, secondly in the muscular system, and thirdly in the bony system.[4] This paper, however, will be confined to some of the more important skeletal signs. Guérin [5] considered that rickets was manifested first in the legs and worked upward. Barlow [6] in his study nearly a half century ago, asserted that the head and chest were first affected. Recent findings of De Buys,[7] in New Orleans, and of Hess,[8] in New York, substantiate the latter view.

Both in animals [9] and in man, rickets develops during the period of the most rapid growth of that portion of the body affected. We should therefore expect the head to be affected first, the thorax second, and the extremities third. The limits of this paper will not permit the inclusion of detailed data concerning this point, but a careful study of a considerable number of these cases over a period of five years indicates that this is a satisfactory rule. It is often true that all parts of the body show signs of rickets at the same time. It is also true that the only osseous evidence of rickets in some cases is found in the cranium; in others, in the thorax, and in still others, in the upper or lower extremities. Only the most painstaking examination of every infant at frequent intervals will reveal rickets in its incipient stages. During the first four months of extra-uterine life, there is approximately a 20 per cent. increase in the size of both the head and the chest. It is during this early period that craniotabes or cranial rickets most frequently occurs. The head grows comparatively slowly during the latter half of the first year, which marks a period of healing.

Craniotabes was first discovered and named by Elsässer,[10] who described it as areas of parchment-like bone found chiefly on the occiput and parietals during early infancy. Repeated careful examinations of the head during the first four months have revealed this symptom in 60 per cent. of the winter-born babies in our section of the country. Associated with or following this softening of the cranial bones, one finds palpable parietal bosses and flattening of the posterior or posterolateral portions of the head. The mastoid fontanel is usually first to soften and last to harden. At birth, this has about the same consistency as the bones around it, but at from 3 to 8 weeks, palpable flexibility often appears. Occasionally, there is extensive softening, as is shown in Figure 1. This picture, taken December 22, when the baby was 9 weeks of age, illustrates the extent and location of flexibility. In this case, the mother was given a balanced diet, with a food ratio of one to seven, including an abundance of green vegetables. In addition, she was given 8 c.c. of cod liver oil daily. The infant received breast milk exclusively. Eleven weeks later (February 12) another picture was taken. This shows complete recovery, except at two points: (1) An oval area 1 by 3 cm. along the sagittal suture, beginning posterior to the anterior fontanel but separated from it by 1 cm. of hardened bone; (2) a circular area 1 cm. in diameter at each mastoid fantanel. If one will outline with an eyebrow pencil the exact extent of the flexible area, he will often find it greater than expected.

The shape of a normal chest at birth is practically circular at a plane through the costochondral junction of the fifth rib. In a few weeks, there is frequently a change in its form at this plane. The three most common pathologic forms found during the first four months are, in the order of frequency: square, triangular and oval, or "flat." During the second four months of life, and later, this order gradually becomes reversed.

* Read before the Section on Diseases of Children at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

* This paper, together with the papers by Dr. Leonard Findlay and by Drs. E. T. Wyman and C. A. Weymuller, constitute part of a symposium on rickets. The remaining papers by Dr. A. F. Hess and by Drs. L. R. De Buys and Ludo von Meysenbug, together with the discussion, will appear next week.

1. Glisson, Francis: A Treatise on Rickets, Ed. 2, London, 1650; translated from Latin by Phil Armin, London, 1668.
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3. Boötius, quoted from the Latin by Haller (Bibliography Med. Pract., 1779), and by Jacobi in Pepper's System of Medicine **2**: 146, 1885.
4. Moore, C. U.: Experimental Studies of the A Vitamin, Tr. Sect. Dis. Child. A. M. A., 1922, pp. 136-149.
5. Guérin, Jules: Mémoire sur le rachitis, 1838, cited in Trousseau's Clinical Medicine **5**: 49-60, 1872.
6. Barlow, Thomas: Rachitis, in Keating's Encyclopaedia of Diseases of Children **2**: 224, 1889.
7. De Buys, L. R.: A Clinical Study of Rickets in the Breast-Fed Infants, Am. J. Dis. Child. **27**: 149 (Feb.) 1924.
8. Hess, A. F., and Unger, L. J.: Infantile Rickets—The Significance of Clinical, Radiographic and Chemical Examinations in Its Diagnosis and Incidence, Am. J. Dis. Child. **24**: 327 (Oct.) 1922.
9. Mellanby, Edward: Experimental Investigation on Rickets, Lancet **1**: 407 (March 15) 1919.
10. Elsässer: From Keating's Cyclopaedia of Diseases of Children **2**: 225, 1889.

The square chest has its anterior corners or angles near and parallel to the mammary lines; its posterior ones, at the posterior axillary lines. The triangular chest has rounded posterior angles situated at the pos-

Fig. 1.—Cranial rickets in a baby 9 weeks old. Area within the lines was flexible. Softening also extended laterally along the parieto-occipital sutures to the mastoid fontanels.

terior axillary lines, and a flattened anterior angle which is usually wider than the sternum. The anterolateral sides of this triangle extend upward to the axilla and downward to the flaring costal margin. The oval chest

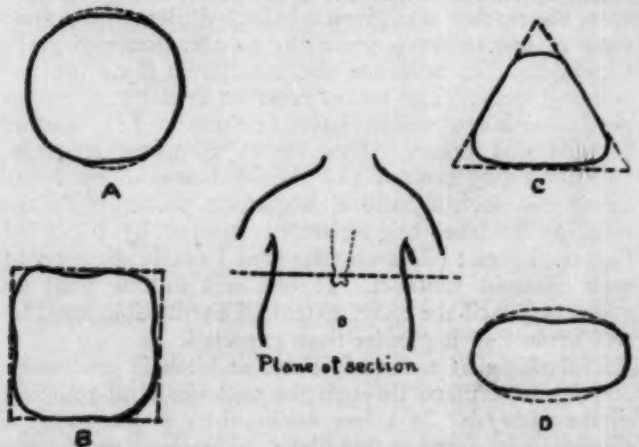


Fig. 2.—Forms of chests seen in transverse section through the costochondral junction of the fifth rib: *A*, normal chest; *B*, *C*, *D*, pathologic chests.

is flattened anteriorly approximately to the anterior axillary line, and usually has an inspiratory depression at the xiphoid. This depression may later become fixed, forming a typical shoemaker chest. In the square chest, the beading of the ribs is more external than internal, in contradistinction to the triangular and oval chests.

In the normal chest at birth, the bony and cartilaginous portions of each rib are, on palpation, approximately equal in hardness. During the first trimester, this often changes so that the anterior portion becomes noticeably softer than the remainder. This softening may be purely cartilaginous, or it may include the rapidly growing anterior end of the osseous rib. It is most frequently found near the sternal ends of the third to the sixth ribs. "Chondromalacia" of Marchand represents a different condition. The term "costomalacia," however, accurately expresses the meaning desired.

A study of the rachitic changes in the chest of experimental animals illustrates various degrees of abnormality. Photographs of our rats were made with

Fig. 3.—Photographs of rats' chests with the light shining through the thoracic wall: *A*, normal ribs; *B*, marked rickets before healing has commenced.

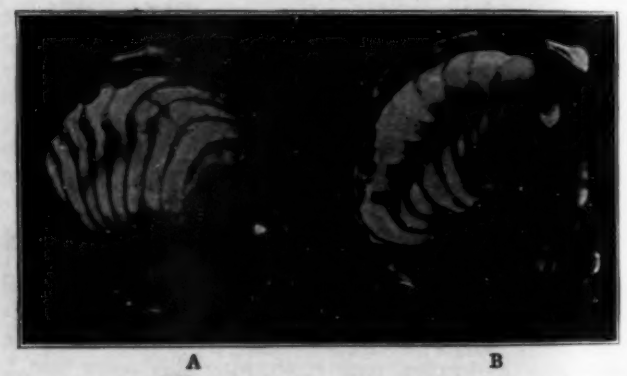


Fig. 4.—Healed thoracic rickets in rats, translucent view: *A*, a one plus rosary with one rib fractured; *B*, four plus condition with fractures of the ribs from 2 to 3 mm. from the costochondral junctions.

the light shining through the thoracic wall, thus giving a translucent view simulating roentgenograms. A normal chest is shown in Figure 3 *A*, while Figure 3 *B* represents marked rickets before healing has commenced. A completely healed one-plus rachitic rosary is represented in Figure 4 *A*, only the sixth rib having been fractured; and a four-plus condition is shown in Figure 4 *B*. The fracture of each rib occurs at the insertion of the muscles about 2 mm. posterior to the costochondral junction. Cases of similar severe rickets in human beings have been noted by many observers, but in our section of the country they are extremely rare.

Careful examinations of the head and chest in older children, and even in adults, frequently reveal the earmarks of this infantile malady. Craniotabes and costomalacia occur primarily during the first four

months of life, but may appear at any time during the first year, depending somewhat on the season of birth and the weight at birth, as well as on heredity,[11] nutrition [12] and skin hygiene.[13] After the first few months,

A B

Fig. 5.—Puppies' legs: *A*, close-knit, normal joints; *B*, loose, rachitic joints.

the head and chest grow proportionately more slowly than the extremities. Enlargement of the epiphyses rarely occurs during the first half year of life. When a child begins to walk, bow-legs and knock-knees appear. If either craniotabes or costomalacia is observed, rickets of the extremities may be anticipated. As we all know, however, it is entirely possible to escape both cranial and thoracic rickets and still have loose joints and flat feet.

Perfect legs are straight, and parallel from the knee down. When one stands erect with the inner borders of the feet parallel and close together, the internal malleoli of the tibiae and the internal tuberosities of the femurs should be in approximation. To determine the degrees of deformity, the method used by tailors is satisfactory. Measurements can be made quickly if the child stands on a towel, on a flat, smooth surface, so that the feet can be moved freely by the examiner. In knock-knees, the number of centimeters between the malleoli are measured when the knees are touching firmly. In bow-legs, the distance in centimeters between the knees is measured when the ankle bones are touching. When testing for genu valgum or varum, the child should stand in an easy, erect position, looking straight ahead. If he is looking downward, the knees are sometimes thrown backward and outward, giving the appearance of bow-legs to legs that are, perhaps, perfectly straight.

11. Byfield, A. H., and Daniels, Amy L.: The Rôle of Parental Nutrition in the Causation of Rickets, J. A. M. A. **81**: 360 (Aug. 4), 1923.
12. Moore, C. U.: Nutrition of Mother and Child, Ed. 2, Philadelphia, J. B. Lippincott Company, 1924, Chapters I to IV.
13. Hess, A. F.: Rickets, in Abt's Pediatrics, Philadelphia, W. B. Saunders Company **2**: 916, 1923.

During an experimental study of rachitic puppies,[4] it was noted that the distance between the bone ends at the joints was much greater than normal, as shown in Figure 5 *A*. It is noticeable that in the normal leg, the joint line is narrow, definite and close-knit. In the rachitic leg (Fig. 5 *B*), on the other hand, the joint line is very much wider at one side, the articular surfaces forming a V with the open end inward in cases of genu valgum. If one compares also the feet of these two puppies, he notices a remarkable difference in the bone ends. An arch made of units fitting firmly, as in Figure 5 *A*, would be strong and durable. It would, of course, be impossible for the open, loose joints of the foot in Figure 5 *B* to form a stable arch. Flat feet would, therefore, be inevitable.

Application of these findings to clinical practice has revealed similar conditions in children, as is shown in Figure 6. This child of 22 months had not yet walked alone. As the bone ends are more widely separated medially, knock-knees is easily anticipated. Lateral motility, or, if preferred, mediolateral motility, of the knees can be measured at any time after a child begins to support himself on his legs. Before that time, the tendons hold the knee more or less in a state of flexion, and the knee is apt to rotate while being moved laterally. Clinical observations show marked looseness of

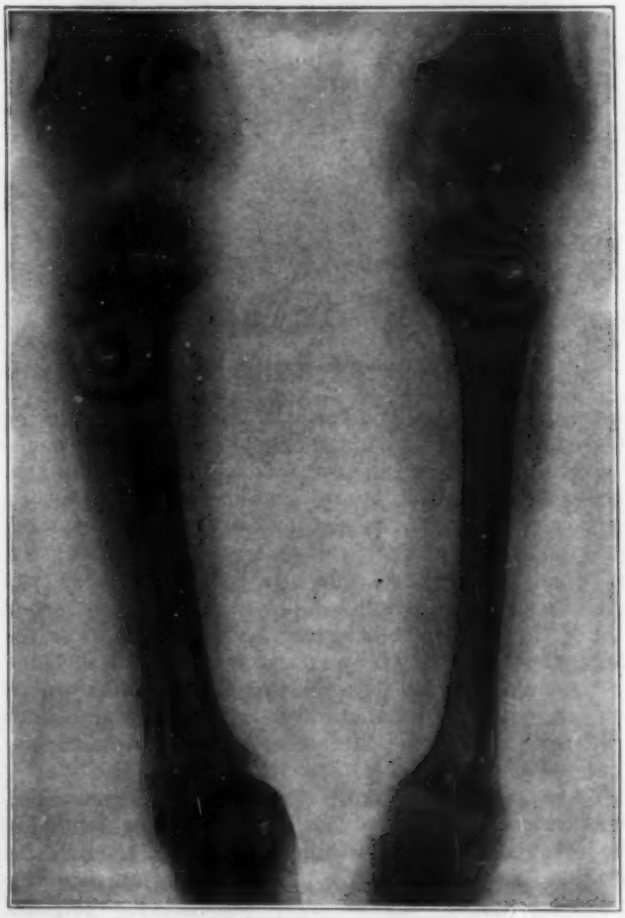


Fig. 6.—Rachitic legs in a child 22 months old, with the V-shaped joint lines at the knees.

the lateral ligaments of the knee joint before either knock-knees or bow-legs have definitely developed. In time, one ligament becomes shortened and the other lengthened, while the epiphyses assume an abnormal position with reference to the shafts of the bones.

To test the lateral motility of the knee joint, the child should either be sitting or lying with the leg fully extended and the foot erect. The examiner grasps the leg at the knee with one hand, while with the other he holds the foot; with this position of vantage, he can

Fig. 7.—Apparatus for measuring knee motility.

move the knee back and forth laterally according to the degree of looseness. As the opposite ends of the bones strike together, an almost audible jolt can be felt. The amount of this lateral motility may be recorded approximately as from one to four plus. When the hips and the foot are held stationary, the amount of movement at the knee, although not great, is very definite if rickets is present. When the hips and the lower end of the femur are held stationary, the lateral movement of the heel is easily measurable. While the hips of the child are held by the nurse, the physician grasps the femur with one hand and moves the foot back and forth with the other. After a little practice, results thus obtained are dependable.

To insure more accurate results, an apparatus called the "knee motility board" has been devised, which holds the hips and femur immovable (Fig. 7). The child sits on the flat surface, while sliding side supports are adjusted tightly against the trochanters. Rapidly adjustable posts hold the leg firmly just above the knee. When making measurements, it is important that the leg be in complete extension, the knee being pressed down close to the board by the hand of the examiner. In Figure 8 *A*, a child is shown in proper position for having the amount of genu valgum measured. In Figure 8 *B*, she is sitting in an earlier type of knee motility apparatus, ready to be tested for the amount of motility in her left knee.

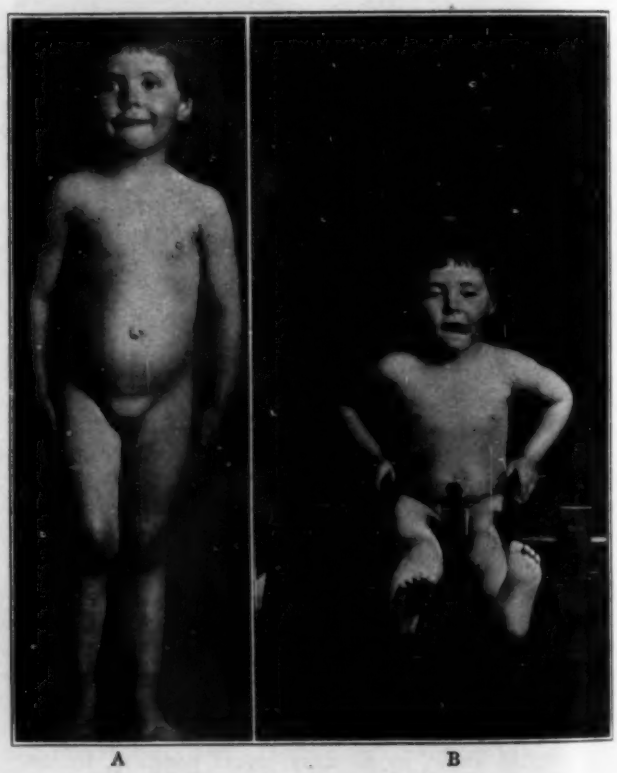
The lateral movement of the heel may be recorded in degrees, the center of the knee being used as the fixed point of the arc. It is simpler, however, to measure in centimeters the movement of the foot sideways. The normal lateral movement of the heel was found to vary between 1 and 3 cm. The increased leg length of the older child is compensated for by the increasing breadth and stability of the knee joint. Normal knee motility for any age was found to be not over 3 cm., while the motility in pathologic cases runs as high as 7.6 cm. In the same child there is a seasonal variation in knee motility, being greatest in the climate of Oregon during the late spring.

Abnormal knee motility is often the first clinical sign of rickets demonstrable in the legs. The value of measuring this motility is threefold: First, it reveals the very beginning of the wobbly knee, the precursor of genu valgum or varum, and thereby permits the early institution of preventive treatment; second, in cases of definite knock-knees or bow-legs, it aids in determining whether there is need for radical treatment; and third, it furnishes a means of measuring improvement during treatment.

SUMMARY

The prevalence of mild rickets in the Pacific Northwest has led to a search for early clinical signs.

The head and chest furnish the first skeletal evidence of the disease.



A B

Fig. 8.—Diagnosis: *A*, proper position for measuring knock-knees; *B*, for testing the lateral motility of the left leg with apparatus.

Craniotabes was demonstrated in 60 per cent. of our winter babies; its existence is most easily determined at the mastoid fontanel.

Among abnormalities of the chest indicating rickets are the square, triangular and oval forms, as measured at the plane of the fifth costochondral junction.

Costomalacia, or softening of the sternal ends of the ribs, appears during the first four months of life and is an important clinical sign.

Both genu valgum and genu varum are always preceded by abnormal lateral motility of the knee joint, which is often the first sign of leg rickets.

Knee motility can be measured approximately by hand or accurately by means of a very simple apparatus. Determining the amount of motility has proved valuable for both diagnosis and prognosis.

THE UNDERLYING CAUSE IN THE PATHOGENESIS OF RICKETS*

LEONARD FINDLAY, M.D.
GLASGOW, SCOTLAND

When I received the invitation of the American Medical Association to be one of the guests of the Section on Diseases of Children, my first feelings were of pride at the great honor bestowed on me and my medical school. I would lief in my acknowledgments have placed my alma mater first, for I am quite confident that any claim I may have to be entertained by you is wholly due to the source of my education. Though Glasgow is not considered, at least by its visitors, a pleasant place for the habitation of man, yet it is, perhaps chiefly if not entirely for that very reason, an ideal home for a school of medicine. Glasgow, as you know, is a veritable beehive of industry, and thus unfortunately possesses all the qualifications for engendering disease. Within a comparatively small area there is a population of a most heteregeneous nature of over 1,000,000 persons, who, in many quarters, are literally huddled together. Disease of the infant and child is especially rife, a fact little to be wondered at when it is appreciated that of all the ages of man, using the classification of Jacques, these two require a maximum of fresh air and sunshine. Hence, every day one is being brought in contact with the big problems of disease, and it would be remarkable if he did not bestir himself and share in the greatest war of all—the fight against disease. More especially is this the case when one has inherited the traditions of a university which housed James Watt, where Lister commenced his revolutionary investigations, where Kelvin spent fifty years of epoch-making work, where Cullen taught medicine, and Buchanan physiology.

After the flush of pride had passed, I realized that a certain condition, though expressed in the form of a gracious request, was imposed on my acceptance of the invitation, viz., the delivery of an address; and my ardor cooled somewhat. It was one thing to take advantage of the opportunity of meeting and seeing the work of many men famous in the sphere of pediatrics, and quite another to have to show justification for the honor received. However, knowing the charitableness of the Americans, I determined to make the best of it and here I am.

The selection of the subject for my address was one of no little difficulty. I should have liked to tell you how in Glasgow we are indebted to the work of the Americans; how we are attempting to solve the problems of nutrition in infancy after the methods perfected by Lusk and Benedict and Talbot; how we are pursuing the avenues opened up by Howland, Marriott, McCollum and a host of others, and how, in the purely clinical field, we have been inspired by your late lamented doyen of pediatrics, Emmett Holt, and, last but not least, by that most wonderful of all teachers, Osler.

I say I might have chosen any one of these topics for my talk; but, after serious consideration, I thought you would prefer to hear me say something on the subject with which, rightly or wrongly, my name is most often associated. I refer, of course, to the malady rickets.

Perhaps with the exception of tetany, the relationship of which to rickets I do not at present intend to touch on, there is no disease, and certainly no disease in the domain of pediatrics, which has been the subject of so much study in so short a space of time. This work, both in the clinical and experimental fields, has accumulated, it must be admitted, a vast amount of information regarding the metabolism of various elements in rickets, and has revealed to us some hitherto unsuspected factors that influence ossification. It has demonstrated for us that there are at least five factors, viz., sunlight, exercise, vitamin X, calcium and phosphorus, which definitely influence this physiologic process, but it has not as yet disclosed, I personally feel convinced, the true or exciting cause of rickets.

Since calcium and phosphorus are essential for the formation of bone, it is not to be wondered that, in their relative absence from the diet, and especially in the case of a rapidly growing animal, ossification is seriously impaired. One can no more make bone without lime and phosphorus than the Israelites could make bricks without straw.

Much controversy has circled round the existence of such a substance as an antirachitic vitamin—called by Park the vitamin X—and its relationship to the fat-soluble A factor. At first, their identity was accepted, but the most recent work[1] has definitely proved that, though frequently associated, fat-soluble A and vitamin X, if such really exists, are quite independent substances. Because cod liver oil, especially rich in a bone calcifying agent, cures rickets, we see no reason for concluding that the disease is due to the absence of any active principle which it may contain. In the first place cod oil is not a natural food of the infant, and, further, were such a conclusion permissible, then all the diseases for which we have specific remedies, e. g., rheumatic fever and syphilis, could with equal justification be classed as deficiency diseases.

That cod oil exerts a powerful effect on ossification, I won't deny; but its influence is not invariable nor does it always cure rickets, at least as I understand the disease. I have seen the disease develop during the course of the administration of cod oil, and, in my hands, it has not usually acted with the promptness recorded by many of its advocates. But my most serious criticism of the cod oil therapy is that though the bones, as revealed by roentgen-ray examination, may become fully and normally calcified, the children remain as incapacitated as ever. This, of course, raises the whole question of what we really understand as rickets, a question of the utmost importance but one that is without the scope of my present argument.

It has euphemistically been said that, in the sunlight, the Glasgow School and its opponents have joined

* Read before the Section on Diseases of Children at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints

1. McCollum, E. V.; Simmonds, N.; Becker, J. E., and Shipley, P. G.: J. Biol. Chem. **50**: 293 (Aug.) 1922.

hands, and that confinement, stressed by my co-workers, exerts its influence through the absence of the sun's rays, and not from lack of exercise. I am not here to defend want of exercise as the ultimate cause of rickets, but I may be permitted to point out that it at least has the same type of evidence in support of its etiologic significance as have cod oil and sunlight. In my experience, children so severely affected with rickets that they can neither stand nor walk improve much more quickly with massage and exercise than with any other method of treatment. With this method of treatment, too, increased calcification undoubtedly results, though it must be admitted not so quickly as with cod oil.[2] In fact, massage and cod oil contrast with one another in their effect on the rachitic picture: with the former, clinical improvement is in excess of radiologic improvement, and with the latter, radiologic improvement outstrips clinical improvement.

That absence of sunlight is not the potent factor in the pathogenesis of rickets that some writers would have us suppose, I am constrained to conclude from my own personal experience of the following examples of spontaneous and experimental rickets. I had in my wards, quite recently, a boy of 10½ years with marked typical late rickets of some twelve months' duration. He was one of a family of ten, and alone presented any manifestations of the disease. His diet was similar to that of the other members and was above suspicion, containing as it did porridge and milk, and his appetite was good. Though many households, within recent years, have suffered hardships from the condition of trade, inquiry elicited the fact that in this case there was no question of privation. The point of special interest, however, in the case, and which makes it worthy of comment, is that both the knees presented evidence of exposure to the weather and were definitely tanned. In this connection, I may also mention the example of spontaneous rickets in a puppy which I recorded many years ago. Two puppies of the same age and breed had been given as pets to a little boy and girl just before they left for their summer holidays. The girl, not being able to run about with her pet, kept him tethered to a garden seat, whereas that of the boy was freely exercised. The two puppies were fed exactly alike and there could be no question in either case of deprivation of sunlight, yet at the end of the holiday the little girl's dog, the one deprived of exercise, had to be destroyed on account of severe rachitic deformities, while the one belonging to the boy was a fine, healthy specimen. I can also recall that my own first experiments were carried out during the summer months, and that the puppies which developed rickets were kept in an open pen during the day, and I recollect seeing them frequently lying basking in the sun. One cannot remain blind to the fact, too, that the advocates of sunlight are not agreed regarding the particular rays which really possess the protective power, and that the history of the controversy regarding fat-soluble A and vitamin X is being repeated. The most rapid effect of radiant energy which I have seen was in response to roentgen rays (Fig. 3).

Is it, then, the diet of the rich which protects? Is the diet of the child of the better classes always so perfectly balanced that the requisite amounts of the "vitamin X," calcium and phosphorus are present? Why all the numerous combinations of rickets-producing factors in the diet should occur only in one class of society is to me the most remarkable fact in the modern conception of this disease. In my experience, rickets among the better classes is, just as in the poorer classes, almost invariably associated with confinement in close, badly ventilated rooms. It must be admitted, however, that every now and again one meets with an example of rickets which cannot be explained on the basis of any hypothesis as yet suggested, and it is this which convinces one more than ever that we are still in ignorance of the true etiologic factor.

Though I have a broader conception of rickets than that it is merely a disease of the bones, I consider that its most striking feature is the deficient calcium content of the skeleton. To me the metabolism of calcium—its absorption, utilization and excretion—is the kernal of the whole problem. Why is it, may I be permitted to ask once again, as so many have asked before me, that a child who is getting ample calcium in its food, and often an excessive amount in comparison with what nature intended it to be supplied, should have bones so poor in this element? There seems to me only three possible ways in which this may come about: (1) The calcium may not be absorbed in sufficient amount; (2) there may be some abnormality in the condition of transportation of the mineral elements, or (3) the growing centers may not have the power to retain it.

That rickets is wholly a process of decalcification, I don't think need be seriously entertained. Were this the underlying pathologic process, then it would be the center of the shaft which would be poorest in calcium, whereas histologic and roentgen-ray examination shows us that it is the growing ends and periphery of the shaft which suffer the greatest deprivation of calcium.

Is it that the growing centers of the bones in rickets cannot fix and incorporate the calcium transported by the blood in sufficient amount? Dr. Anderson,[3] working in Glasgow, has always found in rickets, uncomplicated by tetany, a normal blood calcium content. One can easily surmise that some hormone supplied from within or a vitamin from without is necessary for normal ossification, and that it is the absence of one or the other which is the cause of the abnormal process. But as the fundamental principles underlying the process of calcification are as yet unknown, we can only speculate on the presence of such factors. Both hypotheses, however, have been brought forward, and much controversy has ranged around them. You will remember that Wells conducted experiments which seemed to demonstrate how the various types of cartilage, when introduced intraperitoneally in the rabbit, absorb calcium in proportion as they ultimately become calcified under normal conditions, costal cartilage contrasting very markedly with cricoid cartilage. By this method, I compared the absorptive power of rachitic and normal epiphyseal cartilage and found no difference between them.

Is the calcium not transported in the proper and suitable combination for utilization by the growing bone? We are in such ignorance regarding the combinations in which the calcium is transported that little can be gained at the present moment from such a discussion.

Is calcium absorbed from the intestine in sufficient amount? This, to me, is the crux of the whole matter, and is a point which must be settled before we can proceed any further with a consideration of the etiology of rickets. As I have already remarked, all are agreed

2. Galbraith, D.: Quart. J. Med. **16**: 321 (July) 1923.

3. Anderson, G. H.: Brit. J. Child. Dis. **21**: 33 (Jan.-March) 1924.

that in the vast majority of cases of rickets there is no paucity of calcium in the diet. It has been suggested that in the examples of rickets in breast fed children the mother's milk may have been poor in calcium; but de Wesselow, in a large series of analyses, found no support for such a contention, and Telfer in Glasgow has amply confirmed his findings. Dr. Telfer has very kindly allowed me to quote his findings (as yet unpublished) in detail (Table 1).

TABLE 1.—*Analysis of Milk of Urban Mothers of Rachitic and Nonrachitic Children and of Rural Mothers of Healthy Children (Telfer)*

	Number of Samples	Percentage Fat	Percentage Ash	Percentage Calcium Oxid	Percentage Phosphorus Pentoxid
Urban nonrachitic..	12	2.24	0.196	0.046	0.039
Urban rachitic.....	15	2.85	0.191	0.047	0.039
Rural nonrachitic..	10	3.29	0.20	0.043	0.042

In the case of the artificially fed child there is little likelihood of a diminished calcium intake, even after allowing for the better utilization of the calcium of human milk, since in cow's milk the calcium is about four times more abundant, so that very dilute mixtures would be required before there could be any question of calcium starvation.

But just as there is no doubt that in rickets ample calcium is ingested, there is also no doubt that there is a defective utilization of this element; i. e., that a less amount is retained than in health. Is this defective retention due to increased excretion? This is the generally accepted view because most of that which is not retained leaves the body with the feces. It is a very fine point, however, to decide by an examination of the feces what proportion of a particular substance has entered the bowel by way of the blood stream and what proportion has simply passed through the intestine, and is the unabsorbed residue of the food.

Telfer [4] has recently investigated this question of the excretion of calcium by the intestine, and has brought forward evidence which makes it very doubtful indeed whether, at least in health, such occurs. He has shown that when the calcium in the diet of an infant is cut down to a minimum, the calcium content of the feces practically disappears. This is well exemplified in his

TABLE 2.—*Calcium Retention with Varying Calcium Intake (Telfer)*

Number	Age	Diet	Calcium Oxid in Urine	Calcium Oxid in Feces	Calcium Oxid Retained
1	6 mo.	1.06	0.024	1.48	+0.056
		0.21	0.02	0.18	+0.01
2	6 mo.	1.62	0.027	1.52	+0.073
		0.3	0.006	0.28	+0.014
3	9 mo.	1.6	.....	1.36	+0.24
		0.02	.....	0.04	−0.02

experiments, which certainly lend no support to the idea that in health calcium is excreted by the bowel (Table 2).

It might be argued, of course, that in rickets an abnormal process existed; but before such a hypothesis is adopted, definite evidence should be forthcoming. The excretion of a greater amount of calcium by the feces than is ingested with the food would be proof of such an occurrence, but I very much doubt whether we have this evidence. In view of the number of the estimations published, records of negative calcium balances in rickets are exceedingly rare, and it is especially noteworthy that they figure chiefly in the reports of the earliest work, which was performed at a time when the possible fallacies and necessary conditions for metabolic work were not thoroughly appreciated. As we in Glasgow have pointed out, the calcium content of the feces in health is fairly constant, at least on a milk diet; hence, the total calcium output depends on the total fecal output. This is a point which was certainly not appreciated in the earliest work. It has been further shown by Telfer that the calcium excretion is influenced not only by the amount ingested, but also by the amount of the accompanying phosphorus and the fatty acid concentration of the intestinal contents; e. g., in the absence of phosphorus and fat from the diet, the calcium is excreted as a carbonate. Thus, in the carrying out of balance experiments, several factors other than the amounts of calcium ingested and excreted must be considered. One of the first essentials of a proper balance experiment is that the period of observation should be of sufficient duration (in my opinion seven days at least) to allow of an average fecal output being obtained. Noël Paton, Sharpe and I [5] have shown how an extra large or small output on any one day in a short

TABLE 3.—*Calcium Oxid Retention in Preclinical Stage of Rickets*

Author	Age	Calcium Oxid in Grams: Daily Intake	Daily Output	Daily Retention per Kilogram	Daily Retention per Kg. of Body Weight in Normal Infant
Findlay, Paton and Sharpe[5]	8 mo.	1.7	1.37	0.05	0.123
Telfer [4]	7 mo.	1.2	1.14	0.02	0.085
Telfer [4]	6 mo.	1.62	1.52	0.014	.....

period experiment will entirely dominate the result and may lead to fallacious conclusions. It is also imperative that the child should have been on the diet to be studied for some time prior to collecting the samples, so that the intestinal contents can be definitely related to the diet.

In our studies at Glasgow, when all the foregoing conditions were rigorously observed, we have found in rickets the retention of calcium to be less than in health, and to be erratic, but in no single instance have we found a negative balance; i. e., a greater output than intake. A criticism leveled against the experiments that do not reveal a negative balance is that the disease was not observed early enough in its course, or at a suitable moment. It is said, too, that we can expect a negative balance only before the clinical manifestations are evident. Certainly, the abnormality of the calcium metabolism will be most marked during the most active period and hence, probably, earliest stage of the disease; but why it should be asserted that a negative balance will be obtained only before the disease is clinically evident, I really cannot understand. The metabolic error must persist so long as the disease is progressive, and this continued progress we can often appreciate in well marked cases from successive roentgenograms. However, I have had the opportunity of getting the calcium balance determined at the very earliest period of the

4. Telfer, S. V.: Quart. J. Med. **16**: 63 (Oct.) 1922.

5. Findlay, Leonard; Paton, D. N., and Sharpe, J. S.: Quart. J. Med. **14**: 352 (July) 1921.

disease in three infants. The children had been selected in the first instance as healthy controls on account of the absence of all clinical and radiologic evidence of rickets; but our suspicions were aroused regarding their normality because of the very low, but nevertheless definitely positive balances, and continued observation confirmed our doubts, since in them all definite and severe clinical rickets developed within a period of weeks. Table 3 gives the balances obtained.

Fig. 1.—Definitely increased decalcification during course of metabolism experiment in Case 5. Roentgenograms taken, March 25 and April 12, 1924, respectively.

In Grosser's [6] recently published and most carefully analyzed series of feeding experiments in rickets, a negative calcium balance was found in only one example, a child of 2¾ years. It should be noted, however, that in this case the negative calcium balance was observed only during a period of very low calcium feeding immediately following a period in which an excessively rich calcium diet had been given. In my opinion, insufficient time had been allowed for the effect of the calcium-rich diet to disappear, and, in reality, the calcium output during the calcium-poor period was still being influenced by the rich calcium intake. We do not know the maximum time required for the passage of the intestinal contents; we do know, however, that, after a bismuth meal, often many days elapse before all traces of the meal disappear; hence the fallacy of drawing conclusions from an experiment in which a three or four day period on a calcium-rich diet is immediately followed by a three or four day period on a calcium-poor diet is apparent. I have purposely refrained from a discussion of the experiments by Grosser in which he injected subcutaneously and intravenously relatively large amounts of calcium and found increased excretion by the intestine. At first, I was inclined to look on these experiments as of definite value in the elucidation of the problem of the intestinal excretion of calcium; but, after all, the conditions imposed are hardly comparable with what prevail during the natural course of the disease. By the intravenous injection of calcium, there would most certainly arise an increased calcium content of the blood, and this increased "head" of calcium might quite well lead to an overflow by the intestine. In rickets there is, if anything, a very slightly lowered calcium blood content; at least there is most certainly never a hypercalcemia, so that this increased "head" of calcium could never come into play.

6. Grosser, P.: Ztschr. f. Kinderh. **25**: 141 (June) 1920.

Just before I left Scotland, Dr. Telfer and I had completed an experiment devised for putting this question of intestinal excretion of calcium to the crucial test. In two boys, aged 10½ and 7 years, respectively, with progressive rachitic changes; as evidenced by roentgen-ray examination (Figs. 1 and 2), the calcium intake was reduced to a minimum by giving a diet comprising bread, 100 gm.; meat, 100 gm.; butter, 28 gm.; syrup, 28 gm., and tea with sugar and cream, 960 c.c., containing in all only 0.16 gm. of calcium. It was felt that in this way the unabsorbed residue would be reduced to a minimum and any real negative balance would undoubtedly be due to excretion by the intestine. Both boys were confined to bed, and were given the diet for four days prior to the commencement of the balance experiment so as to insure that the fecal output would correspond with the food intake. The feces and the urine were collected separately for seven days. As will be seen from Table 4, which gives the details of the results, there occurred in one case a definite though extremely small retention of lime, and in the other a slightly negative balance. But considering the duration of the experiments and the weights of the children, the amounts retained and lost were negligible, both being within the range of experimental error. In short, in both experiments the intake and output really balanced.

The foregoing are the first experiments of this kind that we have performed, and also, so far as we know, that have been recorded. Though we consider them of great importance, we feel that they must be repeated, not only in the active stage of late rickets, but also in active early rickets, before one can speak with any definite assurance on this question.

Immediately on the conclusion of the experiment with the low calcium diet, the amount of calcium was very considerably increased by giving calcium chlorid in an amount equal to 2 gms. of calcium oxid daily, and continued for four days. As there was no preperiod, it was impossible to use this four day period with high calcium feeding for setting up a balance; but the change in the

Fig. 2.—Absence of healing during the course of metabolism experiment in Case 4. Roentgenograms taken, March 27 and April 11, 1924, respectively.

fecal and urinary output is of sufficient interest to quote. It will be seen from Table 5 that with the increased intake the urinary calcium was doubled, and further, that with the increased amount of calcium in the intestinal contents a greater proportion of the phosphorus had been retained in the feces with a consequent lowered excretion of phosphorus by the urine. This is exactly what Telfer has shown occurs in health.

It is interesting to note from the foregoing experiments that, during a period of calcium-poor feeding,

the greatest amount of phosphorus was found in the urine. It is usually taught that, in rickets, phosphorus, like the calcium, is found chiefly in the feces; but, as we have shown in Glasgow (Telfer), the route of excretion of the phosphorus is entirely dependent on the relative amount of phosphorus and calcium in the diet and on the intestinal conditions. In any case, it is seen from the experimetns that during active rickets there is not necessarily any impairment of the absorption of phosphorus.

The disproportion between the loss of calcium and the loss of phosphorus is also a striking feature of the experiments. If all the phosphorus lost were derived from bone or its probable combination with calcium, then the loss should be approximately in the proportion of 1.0 calcium oxid to 0.8 phosphorus pentoxid. Whether the total loss or loss by urine alone is considered, there is, in Case 4 a loss of phosphorus in excess of that of the calcium equivalent. Such a finding only permits of the conclusion that, in this example of rickets, much of this phosphorus has been derived from the soft tissues, and furthermore suggests to us that rickets from the metabolic point of view is something more than a disease of the bones. It will be recollected that Schabad, many years ago, drew attention to the negative phosphorus balance in rickets, but he referred the phosphorus loss to the feces. However, as we have mentioned in discussing the question of calcium, it is very much open to doubt whether any conclusions regarding internal metabolism can be drawn from the results of the examination of feces alone.

There is one important aspect of this problem, the significance of which seems to me to have been lost sight of by most workers, Orr and his co-workers at Baltimore, however, being notable exceptions. I refer to the diminished excretion of calcium by the urine, a point about which all workers are in agreement. Hutchison, too, has recently shown that this diminished output of calcium by the urine also holds good in late rickets and osteomalacia (Table 6).

In view of the fact that calcium is normally excreted by the kidney, one would naturally have concluded that if there did exist an increased excretion of lime from its nonutilization by the body, a certain quota of this at least would have left by way of the urinary tract.

TABLE 4.—*Calcium Oxid and Phosphorus Pentoxid Balance in Active Rickets with Minimal Calcium Oxid Intake*

Case	Age	Weight, Kilograms	Duration of Experiment	Calcium Oxid in Grams: Intake	Feces	Urine	Retention	Daily Retention per Kilogram	Phosphorus Pentoxid in Grams: Intake	Urine	Feces	Retention
4	10 yr.	22.5	7 days	1.12	1.29	0.170	—0.34	—0.002	5.124	5.28	1.88	—2.041
5	7 yr.	13.5	7 days	1.12	0.6	0.105	+0.42	+0.004	5.124	3.74	1 38	+0.004

Case	Daily Weight of Dried Feces: 1st	2d	3d	4th	5th	6th	7th	Total
4	7.5	15.0	12.0	7.4	2.7	8.7	14.1	68.4
5	13.3	17.5	4.9	7.8	12.3	7.3	11.9	75.0

TABLE 5.—*Calcium Oxid and Phosphorus Pentoxid Excretion by Urine with Varying Amounts of Calcium Monoxid*

	Calcium-Poor Diet 0.16 Gm. Daily		Calcium-Rich Diet 2.16 Gm. Daily	
	Case 5	Case 4	Case 5	Case 4
Calcium oxid daily	0.015	0.025	0.027	0.05
Phosphorus pentoxid daily	0.534	0.754	0.277	0.705

TABLE 6.—*Calcium Excretion by Urine in Normal and Osteomalacia Patients of the Same Age*

Author	Age, Years	Condition	Intake Calcium Oxid	Calcium Oxid Feces	Calcium Oxid Urine	Duration of Period
Hutchison	14	Late rickets	3.63	2.68	0.02	7 days
Paton, Findlay and Sharpe	12	Healthy	1.2	0.48	0.09	7 days
Hutchison	22	Osteomalacia	3.70	2.85	0.026	7 days
Paton, Findlay and Sharpe	17	Healthy	1.28	0.11	0.34	7 days

The work of Telfer already referred to sheds considerable light on this important question, and his findings receive confirmation in the work of Ahlquist on the calcium metabolism of healthy and tuberculous children. A study of Telfer's analyses reveals the fact that by diminishing the calcium intake, and thus, without doubt, diminishing the amount absorbed, the amount excreted by the urine also diminishes. Telfer has also shown that, conversely, by increasing the calcium intake and thus most probably the amount absorbed, since the amount retained is markedly increased, the urinary calcium is also augmented. This parallel rise and fall of urinary calcium with the amount retained in the healthy subject is one of the most striking features of the observations of Telfer and Ahlquist. This is, as I have said, exactly what one would have expected, and that the same process is at work in rickets is shown from the work of Grosser. Table 7 is compiled from the results of Telfer, Ahlquist and Grosser.

One must, however, guard against magnifying the importance of the significance of the urinary excretion of calcium as there are many factors that influence it, and, unfortunately we are in complete ignorance regarding many of these. Nevertheless, in practice, in contrasting rickets and health, at least in the human subject, there always appears to be a decided difference between the amounts of calcium excreted in the urine, this urinary calcium bearing a definite relationship to the amount retained. But that this same parallelism is not always apparent in the case of the animal is shown from the recent study of Husband, Godden and Richards [7] on the effect of various oils on the retention of calcium in the growing pig. In the experiments described by these workers, there was no concordance between the amount of calcium retained and the amount excreted in the urine, the greatest retention being at times associated with the smallest urinary retention. This diminished urinary excretion in the presence of an improved retention was most marked when cod liver oil was being administered, and might be taken to suggest that these oils (cod liver oil, olive oil and linseed oil) exert their influence by improving the real utilization of the lime;

7. Husband, Godden, and Richards: Biochem. J. 17: 707, 1923.

but, as previously stated, this whole field is so imperfectly explored that our conclusions should be guarded.

That the tissues and organs of the rachitic child are not deficient in calcium might be taken as supporting the contention that the pathologic process is one of a particular inability of the growing center of the bones to fix the lime, and as definitely against the idea of defective absorption of calcium from the intestine. This, along with the normal calcium content of the blood and

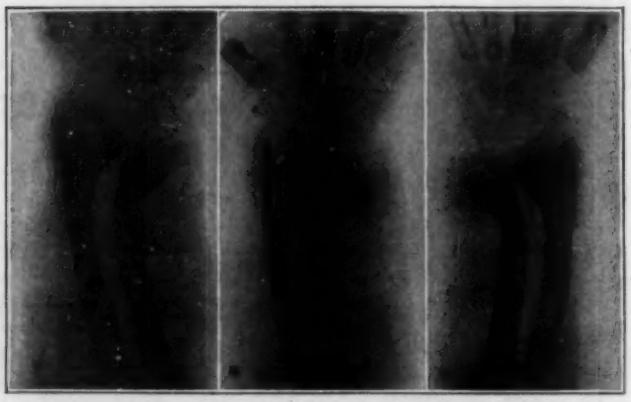


Fig. 3.—Rapid healing as the result of roentgen-ray therapy; exposures, March 28 and April 17, 1924; dates of photographs: *A*, April 4; *B*, April 11; *C*, April 21, 1924.

the earlier experiments with calcium-poor feeding induced Paton and myself, at a previous date, to eliminate this factor. Further consideration, however, has led me to change my opinion, as there does not seem to be any great difficulty in suggesting a probable explanation for this apparently paradoxical state of matters.

It must be remembered that, just as an increasing amount of calcium is required for the growing skeleton, an increasing amount is also required for the increasing size of the tissues and various organs. If there is defective absorption, how then do the tissues get their supplies of calcium? In my opinion, the source of their calcium is that which is liberated by the decalcification of previously formed bone. Decalcification is a normal process, especially active in growing bone, and we know that rickets occurs only in the presence of growth. Decalcification will occure in rickets just as it occurs in health; in fact, it may be that in rickets, for certain reasons, decalcification is particularly active. In health, when there is ample calcium available, much of this which is set free through the absorption of previously formed bone is available for the needs of the growing skeleton, but in rickets I would suggest that it is utilized in the first instance by the tissues generally, as their normal activity is of more vital importance to the economy than that of the merely mechanical osseous system. Dr. Anderson [8] has shown that, even with calcium starvation, the calcium blood content retains a normal level. I consider it exceedingly probable that any mobile calcium is not excreted but is retained, and wholly accounted for in this way. Thus, though the bones are gradually becoming more and more lime free, the calcium content of the tissues remains at a normal level. It should be remembered in this connection, however, that Crichton and Telfer [8] have recently shown that, by feeding young kids on a moderately poor calcium diet, not only was ossification impaired but also general nutrition.

8. Crichton, J. A., and Telfer, S. V.: J. Exper. Path. 5: 84 (April) 1924.

In view of the foregoing various metabolic results and considerations I, like Orr and his co-workers at Baltimore, can come to no other conclusion than that in rickets there is a diminished absorption of the calcium available in ample amount in the diet. Thus only can we explain the diminished retention and at the same time diminished excretion by the urine. In this way, too, it is readily understood how premature children are especially susceptible to the disease. During fetal life, calcium is only deposited during the last three months, and in by far the greatest amount during the ninth month; hence, premature children are born already deficient in lime, and any defective absorption will not only show its effect sooner but also will be relatively more severe.

But what leads to this diminished absorption still awaits solution. I myself have no definite information on the subject, and can only make a few tentative suggestions regarding the possibilities and desired lines of research. It might be suggested that the defective absorption is dependent on a defective demand; but such a hypothesis is unlikely, as it requires the acceptance of a phenomenon which is as yet unknown in physiology.

The idea of rickets being of intestinal origin, and probably of the nature of an infection, is, of course, not new. We, in Glasgow, have studied the intestinal flora in spontaneous and experimental rickets, but have not been successful in discovering anything characteristic. Yet that it is some specific infection influencing the reaction of the intestinal contents in a special direction I think quite possible. The work of Zucker, Johnson and Barnett,[9] showing the effect of the reaction of the diet in experimental rickets, lends some probability to such a suggestion. During recent years, we have learned to appreciate the immense importance of the reaction of culture mediums and of the fluids of the body in vital phenomena. The reaction of the intestinal contents might perhaps influence the growth of some patricular

Table 7.—*Relation Between Calcium Oxid Retention and Calcium Oxid Excretion by Urine*

No.	Author	Age	Condition	Calcium Oxid Intake	Calcium Oxid in Urine	Calcium Oxid in Feces	Calcium Oxid Retained
6	Telfer	6 mo.	Healthy	1.62	0.027	1.52	+0.073
				0.3	0.006	0.28	+0.014
7	Telfer	4 mo.	Healthy	1.28	0.008	1.24	+0.04
				2.28	0.12	1.72	+0.56
8	Grosser	4 wk.	Premature	0.4	0.02	0.44	—0.01
				1.7	0.32	0.80	+0.15
				1.8	0.38	1.0	+0.09
9	Grosser	10 mo.	Rickets	1.05	.....	0.92	+0.13
				3.5	0.03	2.2	+1.3
10	Ahlquist	3½ yr.	Healthy	1.33	0.06	0.80	+0.435
11	Ahlquist	6 yr.	Healthy	2.29	0.18	1.4	+0.861
12	Ahlquist	9½ yr.	Healthy	3.3	0.25	1.6	+1.7

organism or, on the other hand, it might affect the amount of calcium retained in solution, which, of course, would modify absorption. That it is a disease of intestinal origin receives strong support from the recent experimental work of Lesné and Vagliano,[10] who have shown that cod liver oil when given subcutaneously still exerts its growth-directing action, but has no effect on calcification.

Dr. Stevenson, in my department, has recently investigated the question of the proportion of calcium in the

9. Zucker, Johnson, and Barnett: Proc. Soc. Exper. Biol. & Med. 20: 20, 1922-1923.

10. Lesné, E., and Vagliano, M.: Compt. rend. Acad. d. sc. 177: 711, No. 16.

diet which is rendered soluble during the process of digestion. In health by the end of two hours, she found all the calcium in a soluble form, whereas in rickets only about 90 per cent. had been so changed. If it could be demonstrated that in the upper reaches of the intestine there resulted an increased precipitation of calcium, then we should have still another link in the evidence that rickets is a disease of intestinal origin; but this, as the discussion of other possible lines of research, especially those relating to the physiology of ossification, about which our fundamental knowledge is so meager, must be left for the future.

THE ORGANIZATION OF A SPECIAL CLINIC

FOR THE TREATMENT OF RICKETS WITH THE MERCURY VAPOR QUARTZ LAMP IN AN OUTPATIENT DEPARTMENT *

EDWIN T. WYMAN, M.D.
BOSTON
AND
CHARLES A. WEYMULLER, M.D.
BROOKLYN

It has long been recognized that rickets is the most widespread nutritional disorder of infants occurring in the temperate zone. In order to find the incidence of rickets in infants in Boston and its vicinity, we have taken a series of 400 babies, between the ages of 3 and 8 months, coming to the outpatient department of the Children's Hospital, who had not had cod liver oil. A careful physical examination was made in each case, and roentgenograms were taken. Those babies showing neither clinical nor roentgen-ray evidence of rickets were followed along without antirachitic treatment until evidence of rickets developed. It was found that 95 per cent. of all the babies and 100 per cent. of the Italian and negro babies examined showed either active or healed rickets before they were 8 months old. It was also found that, during the winter months, all the babies seen showed evidences of rickets. In those babies who developed rickets while under observation, the rachitic rosary was the first and most reliable sign. In these early cases, the roentgen ray is of little help, as it shows simply diminished calcification of the bones, a condition which it is difficult to distinguish from the normal. In those cases in which a clinical diagnosis of rickets was made and treatment with cod liver oil or light was started, subsequent roentgenograms showed increased calcium deposits at the metaphyses, and irregular calcium deposits along the shafts, typical of healing rickets.

In 1899, Morse [1] made a systematic study of the incidence of rickets in 400 consecutive infants under 2 years, who were attending the medical outpatient department of the Infants' Hospital, in Boston. He found that 80 per cent. showed distinct bony changes characteristic of rickets. He states, however, that this percentage was undoubtedly too low, as many babies only a few days old were included in the series, and only those cases were called rachitic in which bony changes were evident. The only condition, according to Morse, common to all cases alike was improper hygienic conditions.

In 1919, Huldschinsky [2] reported that ultraviolet rays exerted a curative action in rickets. Palm,[3] in 1890, had, however, recognized the full importance of the lack of sunlight in the etiology of rickets, and had given remarkable recommendations for the eradication of the disease by means of sunlight. The discovery by Huldschinsky of the curative action of light in human rickets has been corroborated by numerous other investigators.

Hoag [4] has shown that ultraviolet rays applied in amounts approaching the limit of tolerance and unaccompanied by any other treatment cause a progressive and permanent relief of clinical symptoms in infants with tetany, which is paralleled by the return of the serum calcium concentration to normal. An average of fourteen days was required for the calcium to rise from its initial low figure to about 9.5 mg. per hundred cubic centimeters of blood.

Hess, Pappenheimer and Weinstock [5] have shown that, in the case of the rat, the rays of light which protect against rickets lie in the ultraviolet zone, and are about 300 millimicrons in length, or shorter.

In 1923, on account of the great prevalence of rickets in Boston, at Dr. Schloss' suggestion, we organized a special clinic in the outpatient department of the Children's Hospital for the treatment of this disorder. In this clinic, during the last year, eighty-six cases were treated with ultraviolet rays alone, the patients coming to the clinic for treatments three times a week. During the summer of 1923, the cases treated showed very striking results, but, as the patients had the advantage of the summer sunshine and probably would have shown some improvement without antirachitic treatment, the work was continued through the past winter. The results were equally good. Six normal babies were used as control cases, and were treated with ultraviolet rays over a period of two months, with exposures three times a week, and six cases were treated with both ultraviolet rays and cod liver oil.

The source of the ultraviolet rays was a direct current all mercury Alpine sun burner. According to the manufacturers, this burner emits ultraviolet radiation consisting of a continuous spectrum from 185 to 400 millimicrons, on which is superimposed the mercury arc line spectrum, the principal lines of which are at 364, 313, 302, 280, 265, 255, 240, 200 and 185. There are many other lines, but those mentioned are the most intense. The two lines at 265 and 255 are especially strong. The line at 364 is the strongest line in the mercury ultraviolet spectrum. Four amperes was used on a 110 volt direct current. The ages of the lamps used were between 500 and 600 production hours.

The roentgen-ray studies were made by Dr. Charles Liebman of the Children's Hospital. At first we used roentgen-ray films of the knees, but later adopted Dr. Park's method of making films of the wrists with the palm upward, and also his scheme of classifying the films into: A, active rickets; B, rickets with evidence of lime salt deposition; C, evidence of previous rickets; D, doubtful (may be either DA, DB or DC), and E, normal. A, B and C were further divided into: (1) early or slight; (2) moderate, and (3) severe. This classification is very satisfactory.

The examinations of the blood were made in the laboratory of the Children's Hospital by Dr. Bengt

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* Read before the Section on Diseases of Children at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

1. Morse, J. L.: Philadelphia M. J., May 26, 1900.
2. Huldschinsky, K.: Ztschr. f. orthop. Chir. **39**: 426, 1920.
3. Palm: Practitioner **65**: 270, 321, 1890.
4. Hoag, L. A.: Treatment of Infantile Tetany with Ultraviolet Radiation, Am. J. Dis. Child. **36**: 186, 1923.
5. Hess, A. F.; Pappenheimer, A. M., and Weinstock, M.: Proc. Soc. Exper. Biol. & Med. **20**: 14, 1922-1923.

Hamilton. He measured the calcium concentration in the serum by the Kramer[6] method or a modification of the Kramer method with 2 c.c. of serum, and the inorganic phosphorus concentration in the serum by the method of Briggs,[7] using 1 c.c. of serum.

The patients were exposed with the lamp at a uniform distance of 20 inches from the surface of the body. The initial treatment was two minutes to the front and two minutes to the back of the body, a total of four minutes. This exposure was increased one minute to the front and one minute to the back, a total of two minutes, each successive treatment, until an exposure of fifteen minutes to the back and fifteen minutes to the front, a total of thirty minutes, was given. This routine could be carried out without undue erythema with even the most delicate skins. None of the patients treated received cod liver oil or other medication, and the diet was not interfered with, the regulation of the baby's feeding being carried out by the physician who had first seen the baby in the outpatient department. For the most part, these patients were on whole milk or dilutions of whole milk, and those of proper age were given cereal, broth, zwiebach, green vegetables and orange juice. Roentgenograms were taken before the treatment was started, and at the end of each successive two weeks. The calcium and phosphorus content of the blood was determined in ten of the cases, and five patients were admitted to the hospital ward in order that they could be under closer observation and their blood studied at ten day intervals. The blood was taken from one of the veins of the scalp, or from the external jugular vein. It is extremely difficult to get sufficient blood from some of the fat babies in this way, and, as we did not feel justified in taking it from the sinuses, we have not made as many observations as we should have desired.

All the eighty-six cases of acute rickets treated showed steady improvement with ultraviolet irradiation, as evidenced by the clinical findings, roentgenograms and, when it was studied, the changes in the blood. Clinically, there was improvement in the general condition, muscular tone and color, and disappearance of craniotabes, fretfulness, languor and restlessness. One child of 2 years, who had not walked, was walking within a month. Many babies who were listless and fretful rapidly became more active and happy. They gained weight without change in the food. The general improvement was soon noted by the parents, and there was no difficulty in getting them to come to the special clinic three times a week, although many of them had to come a considerable distance by street car. The roentgenograms showed increased calcium deposits at the end of two weeks. The improvement, however, became much more marked when longer treatments had been given.

In all the cases in which the blood was examined before treatment was begun, there was a low concentration of serum phosphorus, and, in the cases having tetany in addition to rickets, there was also a low concentration of serum calcium. During the treatment with ultraviolet rays, the concentration of serum phosphorus was increased. It reached the normal within a period of two weeks, and, in all the patients examined, was above normal when they were discharged. There was also a steady increase in the concentration of serum calcium, which paralleled their clinical improvement, in the patients having tetany.

6. Kramer, Benjamin; and Tisdall, F. F.: J. Biol. Chem. **47**: 475 (Aug.) 1921.
7. Briggs, A. P.: J. Biol. Chem. **53**: 13 (July) 1922.

The average length of time the patients were treated was from six to eight weeks, at which time the roentgen-ray examination showed evidence of healed rickets, and the therapy was changed to cod liver oil.

The six control patients showed no evidence of rickets, but thrived and seemed healthier, finer babies than they would have been without the ultraviolet rays. One of these patients had a moderate eczema, which condition was much improved during the period of treatment. The six patients treated with both ultraviolet rays and cod liver oil showed marked improvement, the improvement being more marked, we think, than it would have been if ultraviolet rays or cod liver oil alone had been used.

CONCLUSIONS

1. Rickets is a very prevalent nutritional disorder in Boston. In cities where rickets is most prevalent, special clinics for the treatment of the disorder should be organized.

2. Acute rickets can be cured, in an outpatient department, by ultraviolet irradiation, the treatments being given three times a week, without any other antirachitic medication.

3. Ultraviolet irradiation, in combination with cod liver oil, is useful in treating acute rickets, and probably hastens the healing processes more than either ultraviolet rays or cod liver oil alone.

4. Ultraviolet irradiation three times a week prevents the development of rickets.

If the progress recently made in manufacturing fused quartz continues, it may soon be possible to have quartz windows in every nursery, so that the baby can have its daily sun bath in a warm room. It may also be possible to devise an electric quartz bulb, simple to operate, harmless and inexpensive, which will give off sufficient actinic rays, with from one-half to one hour exposure a day, to prevent the occurrence of rickets in babies. A simple lamp of this sort, could it be made, would be a part of every nursery equipment, and a daily sun bath with the lamp, when the baby could not be exposed to direct sunlight, would prevent rickets. This would also do away with the necessity of giving cod liver oil as a preventive.

We wish to emphasize that, whereas failure of calcium deposition in the epiplyses is an early and relative pathognomonic manifestation of rickets, the fact should not be lost sight of that this failure of calcium deposition is only one of the manifestations of the disease.

It should be remembered that rickets is a general constitutional disease and that any therapeutic agent which is accepted as a cure of rickets must be effective not only in restoring the calcium deposition to normal but also in restoring to normal the whole organism.

Ultraviolet rays seem to accomplish a complete cure for rickets more than any other therapeutic agent alone, though their action may be aided by proper diet, proper hygiene and the administration of cod liver oil.

Until the cause of rickets has been more fully determined, it must be kept in mind that, in addition to sunlight and cod liver oil, there are other agents that bring about a more complete restoration to normal of all the physiologic functions in the rachitic infant.

REPORT OF CASES

CASE 1.—R. O., aged 1 year, a poorly developed girl, admitted to the hospital, March 21, 1924, had failed to gain on a variety of dilutions of whole milk. Her development had been slow, and at 1 year she was unable to sit alone

The family and past histories were negative. The present illness was indefinite in onset, and consisted primarily of failure to gain, and pallor. The physical examination showed all the classical signs of rickets: craniotabes; enlargement of parietal bosses; delayed closure of the fontanel; delayed dentition; enlargement of the costochondral junctions; Harrison's groove and enlarged distal epiphyses of the ulnae and radii.

Fig. 1.—Changes in Case 1: *A*, March 21, 1924; *B*, March 31; *C*, April 11; *D*, April 23; *E*, April 30.

TABLE 1.—*Observations in Case 1*

Date	Serum Phosphorus Mg. per Hundred C.c.	Serum Calcium Mg. per Hundred C.c.	Hemoglobin Per Cent.	Red Blood Corpuscles
3/22/24.....	4.1	9.1	24	2,224,000
4/ 2/24.....	3.6	8.3	..	.....
4/12/24.....	6.2	9.6	..	.....
4/23/24.....	7.4	9.6	82	4,208,000

March 22, blood examination revealed: hemoglobin, 24 per cent.; red corpuscles, 2,224,000. The differential count of the white cells was normal. The serum calcium was 9.1 mg. per hundred cubic centimeters. The serum phosphorus was 4.1 mg. per hundred cubic centimeters. The Wassermann test was negative.

April 2, the serum calcium was 8.3 mg. per hundred cubic centimeters. The serum phosphorus was 3.6 mg. per hundred cubic centimeters.

April 12, the serum calcium was 9.6 mg. per hundred cubic centimeters. The serum phosphorus was 6.2 mg. per hundred cubic centimeters.

April 20, the hemoglobin was 82 per cent. The red count was 4,208,000.

April 23, the serum calcium was 9.6 mg. per hundred cubic centimeters. The serum phosphorus was 7.4 mg. per hundred cubic centimeters.

During the month's stay in the hospital, the baby's gain was from 8 pounds 8 ounces (3.8 kg.) to 9 pounds 4 ounces (4.2 kg.). The baby had ultraviolet light therapy three times a week. The marked craniotabes that was present on admission disappeared in two weeks. During the first twenty days of light treatment, there was a growth in length of 3 cm.; the baby's condition was markedly improved, and a roentgenogram showed strikingly the calcification of the osteoid tissue at the metaphyses.

During the last week, the therapy was intensified by the addition of 1 dram (3.7 c.c.) of cod liver oil daily and light treatment, daily, instead of three times a week. The blood calcium at the end of this period was 9.6 mg. per hundred cubic centimeters, the same as before, and the phosphorus 7.4 mg. per hundred cubic centimeters. The roentgenogram taken at that time showed a still more marked improvement in calcification. The physical examination at discharge showed a complete disappearance of the craniotabes, but persistence of the rosary, epiphyseal enlargement and Harrison's groove. The hemoglobin was 82 per cent., compared with 24 per cent. on admission.

CASE 2.—H. P., aged 8 months, breast fed for two weeks, then put on dilutions of whole milk, was admitted to the hospital for convulsions. The physical examination showed marked rickets—rosary, Harrison's groove, enlarged bosses and enlarged epiphyses. Chvostek's sign and Trousseau's sign were negative. The electrical reactions were characteristic of tetany. April 9, the hemoglobin was 50 per cent. The red count was 4,376,000. The serum phosphorus was 5.25. The serum calcium was 5.76.

May 1, the serum phosphorus was 7.2 mg. per hundred cubic centimeters. The serum calcium was 10.5 mg. per hundred cubic centimeters.

May 27, the serum calcium was 9.98 mg. per hundred cubic centimeters; the serum phosphorus was 6.1 mg. per hundred cubic centimeters. During the period in the hospital, the baby was treated with ultraviolet radiations three times a week. The baby had only one convulsion, the day after admission, and there was progressive clinical improvement which paralleled the improvement as shown in the chemical composition of the blood. The roentgenogram showed markedly increased calcification at the metaphyses and along the shafts of the bones.

CASE 3.—E. L., a negro boy, aged 19 months, who at birth weighed 7 pounds 10 ounces (3.3 kg.), and had been breast fed for one week, was in the Boston Lying-In Hospital for two months, and from that time up to 10 months had been cared for at home under rather poor hygienic conditions. During this time, the infant was fed on a whole milk dilution. From 10 months up to the time of admission to the hospital, he was cared for at the Little Wanderers' Home, where he was given an ordinary infant diet. On admission, he was a rather poorly nourished baby with all the clinical signs of rickets. Treatment with the ultraviolet ray was started, April 15, and the baby was also given 1 teaspoonful of cod liver oil twice a day. The ultraviolet irradiations were begun at two minutes and increased one minute daily, front and back, until he was given twenty minutes, front and back.

Fig. 2.—Changes in Case 2: *A*, April 10, 1924; *B*, April 25; *C*, May 27.

TABLE 2.—*Observations in Case 2*

Date	Serum Phosphorus Mg. per Hundred C.c.	Serum Calcium Mg. per Hundred C.c.	Hemoglobin Per Cent.	Red Blood Corpuscles
4/ 9/24.....	5.25	5.76	50	4,376,000
5/ 1/24.....	7.2	10.5	..	.....
5/28/24.....	6.1	9.98	85	5,400,000

April 19, the blood showed serum calcium 9.8 mg. per hundred cubic centimeters; the serum phosphorus, 2.5 mg. per hundred cubic centimeters.

April 31, the serum calcium was 7.6 mg. per hundred cubic centimeters; the serum phosphorus, 3.6 mg. per hundred cubic centimeters.

May 26, the serum calcium was 10.6 mg. per hundred cubic centimeters; the serum phosphorus, 6.06 mg. per hundred cubic centimeters.

Fig. 3.—Changes in Case 3: *A*, March 25, 1924; *B*, April 15; *C*, April 24; *D*, May 26.

TABLE 3.—*Observations in Case 3*

Date	Serum Phosphorus Mg. per Hundred C.c.	Serum Calcium	Hemoglobin Per Cent.	Red Blood Corpuscles
4/19/24.....	2.5	9.8	80	3,600,000
4/31/24.....	3.6	7.6	..	.....
5/26/24.....	6.06	10.6	84	5,440,000

During the stay in the hospital, there was marked clinical improvement. The baby showed much more activity than before. There was a marked increase in the calcium deposition as shown by the roentgen-ray examination, and the serum phosphorus increased from 2.5, April 19, to 6.06, May 26. The hemoglobin increased from 80 per cent., April 19, to 84 per cent., May 26, and the red count from 3,600,000, April 19, to 5,440,000, May 26.

CASE 4.—G. V., aged 15½ months, a poorly developed and nourished Portuguese-American boy, was admitted to the hospital, May 6, 1924. The family history was negative. He was a full term baby. His birth weight was unknown. He was never breast fed and, during the first year, he was fed on malted milk and dilutions of whole milk. At seven months cereal and crackers were added to his diet, and at 10 months the diet consisted of 1 quart of whole milk, cereal, bread, crackers and orange juice. Later, beef juice was added to the diet. For five months, the mother had noticed pallor, languor and fretfulness. He had never talked, walked or even attempted to sit up or stand. The bony deformities had been noticed for three months. His general condition was getting worse and, for two weeks before admission he had been given only milk. He had never had cod liver oil. His weight on admission was 15 pounds (6.8 kg.).

The physical examination showed all the classical signs of rickets, and there was a fracture in the middle portion of both thighs and a fracture of both bones of the right arm. On admission, the child was given an infant diet consisting of whole milk, cereal, zwieback and vegetables. A little later egg and potato were added. Triweekly ultraviolet irradiations were started at three minutes and increased two minutes to the front and two minutes to the back at each successive treatment until a total of fifteen minutes to the front and fifteen minutes to the back was reached. At the end of the third week, daily treatments were given of fifteen minutes front and fifteen minutes back until he was discharged. May 7, the blood examination showed hemoglobin, 85 per cent.; red corpuscles, 4,768,000. The differential count of the white cells was normal. The serum calcium was 5.97 mg. per hundred cubic centimeters. The serum phosphorus was 3.93 mg. per hundred cubic centimeters.

May 17, the serum calcium was 6.62 mg. per hundred cubic centimeters. The serum phosphorus was 4.02 mg. per hundred cubic centimeters. May 26, the serum calcium was 7.68 mg. per hundred cubic centimeters and the serum phosphorus was 5.10 mg. per hundred cubic centimeters. The hemoglobin was 88 per cent. and the red corpuscles 5,020,000. June 7, the serum calcium was 8.97 mg. per hundred cubic centimeters, and the serum phosphorus was 5.45 mg. per hundred cubic centimeters.

June 19, at the time of his discharge, the serum calcium was 9.98 mg. per hundred cubic centimeters and the serum phosphorus was 6.10 mg. per hundred cubic centimeters.

During his stay in the hospital, the general condition was greatly improved. He gained a pound in weight. The fractures healed and he was able to sit up without support. He was also much more active. There was marked increase in calcium deposition, as shown by the roentgen-ray examinations, and the serum phosphorus increased from 3.93 mg., May 7, to 6.10 mg., June 19.

CASE 5.—L. G., a girl, aged 9 months, admitted, March 24, 1924, had been in the hospital previously for prematurity and regulation of feeding. She had been receiving 30 drops of cod liver oil daily for the past few months. Physical examination showed a pale infant with marked rickets, evidenced especially by craniotabes. The day of admission, the hemoglobin was 50 per cent. The red count was 2,706,000. The serum calcium was 9.4 mg. per hundred cubic centimeters. The serum phosphorus was 2.5 mg. per hundred cubic centimeters. April 2, the serum calcium was 9.1 mg. per hundred cubic centimeters. The serum phosphorus was 4.3 per hundred cubic centimeters. The Wassermann test was negative. April

Fig. 4.—Changes in Case 4: *A*, May 5, 1924; *B*, May 17; *C*, May 26; *D*, June 19.

TABLE 4.—*Observations in Case 4*

Date	Serum Phosphorus Mg. per Hundred C.c.	Serum Calcium	Hemoglobin Per Cent.	Red Blood Corpuscles
5/ 7/24.....	3.93	5.97	85	4,768,000
5/17/24.....	4.02	6.62	..	.....
5/26/24.....	5.10	7.68	88	5,020,000
6/ 7/24.....	5.45	8.97	..	.....
6/19/24.....	6.10	9.98	..	.....

12, the serum calcium was 10.2 mg. per hundred cubic centimeters. The serum phosphorus was 6.6 mg. per hundred cubic centimeters.

April 22, the hemoglobin was 65 per cent. The red count was 4,288,000.

The weight on admission to the hospital was 10 pounds 5 ounces (4.6 kg.). The weight on discharge, at the end of four weeks, was 11 pounds 8 ounces (5.2 kg.). During her stay in the hospital, the baby showed marked improvement, as proved by the blood calcium and phosphorus, as well as by the roentgen-ray examination and the blood count. During the last week of her stay, the triweekly lamp treatments were changed to daily treatments, and cod liver oil, 1 dram (3.7 c.c.), daily, was given.

During her stay in the hospital, the baby's general condition was markedly improved. The roentgenograms showed increased calcium deposition, and the serum phosphorus increased from 2.5 mg. to 6.6 mg. per hundred cubic centimeters in a month.

TUBERCULOSIS OF THE TONGUE*

HOWARD MORROW, M.D.
AND
HIRAM E. MILLER, M.D.
SAN FRANCISCO

Tuberculosis of the tongue is considered one of the rare manifestations of tuberculosis in the human body. Medical literature contains a few good articles on this subject. Dermatologic textbooks ignore it. A perusal

Fig. 1.—Deep seated tuberculous nodules throughout the dorsum of the tongue without ulceration of mucous membrane, in a patient with advanced pulmonary tuberculosis.

of the indexes of our standard dermatologic textbooks does not reveal the name. In the differential diagnosis of other tongue conditions, it is not mentioned. We think that it is not as rare as the literature would lead us to believe, and we feel certain that the difficulties encountered in the diagnosis of tuberculosis of the tongue, especially in primary tuberculosis of the tongue, warrant some space and thought in dermatologic textbooks.

The first authentic case of this disease was reported by Portal,[1] in 1804. Morgagni,[2] in 1761, described a patient with tubercles on the tongue, but he does not define the word "tubercle" as he uses it. It is with considerable pride that we point to the first case in American literature, reported in the *Pacific Medical and Surgical Journal* of 1859 by Dr. H. H. Toland of San Francisco, who was the founder of the University of California Medical School. The literature since that time has been sparsely scattered with cases reported.

In 1915, Durante[3] was able to compile about 250 cases of primary and secondary tuberculosis of the tongue. Since 1915, we have found sixteen additional cases in the literature,[4] twelve of which were secondary and four primary. To this number, we add sixteen cases; fifteen of which are secondary and one primary. This will make a total of 282 cases in the literature.

Fig. 2.—Papillomatous tuberculous lesion on the posterior side of the tongue, in a patient with advanced pulmonary tuberculosis.

Most of the statistics dealing with the frequency of the disease are gathered from necropsy reports. Any one who observes, or has observed, many routine necropsies, will know how infrequently the mouth is examined or explored. Willegk found only two cases of tuberculosis of the tongue in 1,317 necropsies; Fisher found six in 1,500 necropsies; Chiarai found twelve in 625 necropsies on tuberculous patients; Blanchard found twenty-five in 3,935 necropsies on tuberculous patients; Fowler, in 382 necropsies, found four,

Fig. 3.—Punched-out tuberculous ulcer on the inferior surface of the tongue, in a patient with advanced pulmonary tuberculosis.

and Adami, in 417 necropsies on tuberculous patients, found none. Hamel[5] reports only one patient so

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* From the Department of Dermatology of the University of California Medical School.

* Read before the Section on Dermatology and Syphilology at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

1. Portal: Course d'anatomie, Paris **4**: 527, 1804.
2. Morgagni: De Sedibus et Causis Morborum per Anatomen Indigatis, 1761.
3. Durante, L.: Tuberculosis of the Tongue, Ann. Surg. **63**: 143 (Feb.) 1916.
4. Scott, J. R.: Tuberculosis of the Tongue, Am. J. M. Sc. **152**: 411 (Sept.) 1916. White, W. C., and Marcey, C. H.: Tuberculosis of the Tongue—Specific Cure, Bull. Johns Hopkins Hosp. **28**: 174 (May) 1917. Besley: Tuberculosis of the Tongue, Surg., Gynec. & Obst. **35**: 244, 1922. Taddei, D.: Tuberculous Abscess in Tongue, Policlinico **29**: 13 (March 27) 1922; abstr. J. A. M. A. **78**: 1579 (May 20) 1922. Fantozzi: Tuberculosis of the Tongue, Policlinico **30**: 233 (May 15) 1923; abstr. J. A. M. A. **81**: 511 (Aug. 11) 1923. Handfield-Jones, R. M.: Tuberculous Affections of the Tongue, Lancet **1**: 8-11 (Jan. 6) 1923.
5. Hamel: Deutsche Heilstätten für Lungenkranke: geschichtliche und statische Mitteilungen, Tuberk.-Arb. a. d. k. Gsndtsamte, Berlin **4**: 1-203, 1905.

afflicted among 12,369 patients in German sanatoriums, while von Ruck [6] found nineteen cases among 3,000 tuberculous patients in the United States. The great discrepancy in these reports is obvious. In the tuberculosis department of the University of California service at the San Francisco Hospital, we have seen fourteen cases among 1,444 patients in the last four years. This incidence of a little less than 1 per cent. is much higher than has ever been previously reported.

Fig. 4.—Superficial tuberculous ulcer on the tip of the tongue, in a patient with advanced pulmonary tuberculosis.

The relative infrequency of tuberculosis of the tongue is probably due to the thickness of its mucous membrane and the marked general resistance of striated muscle to bacterial invasion. The mechanical cleansing effect of saliva and the continual movement of the tongue undoubtedly play some part.

Tuberculosis of the tongue is caused by the deposition and subsequent growth of the tubercle bacillus in the tongue. Some break in the continuity of the mucous membrane is generally thought to be necessary for the

Fig. 5.—Tuberculous ulcer on the lateral border of the tongue, in a patient without any other signs or symptoms of tuberculosis.

bacillus to gain entrance. If the tubercle bacillus comes from the patient himself, i. e., from sputum, from the blood stream or neighboring tissues, it is spoken of as secondary tuberculosis of the tongue; if the infection is from the outside, and in a patient who shows no signs or symptoms of the disease, it is called primary tuberculosis of the tongue.

6. Von Ruck: Laryngoscope **122**: 1190, 1912.

The occurrence of primary tuberculosis of the tongue is doubted by some. Two cases reported by Clarke [7] and by Schilferowitsch [8] seem to prove that it does occur. These two patients were operated on for tuberculosis of the tongue, and, when they died some time later, from other causes, the postmortem examination did not reveal tuberculous lesions in other organs. The literature contains about thirty cases of primary tuberculosis of the tongue. Many of this number are probably secondary, as the disease may exist for a considerable period of time in the internal organs without any signs or symptoms. In four of our cases, the first sign or symptom of the disease was the lesion on the tongue. On physical examination, three of this number showed other outspoken signs of the disease. In one, we were unable to find any other evidence of the disease, and we look on it as a primary case of tuberculosis of the tongue. Nevertheless, we took the precaution to rearrange his habits of living and eating as we would have in a case of suspected pulmonary tuberculosis.

Fig. 6.—Section of tissue from patient shown in Figure 5, showing round cell infiltration and giant cell formation.

The age of the patient seems to be of little importance in the occurrence of the disease in the tongue. Fantozzi [4] tells of the disease in a child aged 5½ years, while Zintmaster [9] reports a case in a man aged 80. Of the reported cases, the largest number of patients fall between the ages of 40 and 50. In our series, as the accompanying table will indicate, more than 40 per cent. were between the ages of 30 and 40.

Ages of Patients with Tuberculosis of the Tongue

Age	10–19	20–29	30–39	40–49	50–59	60–69	Total
Number of patients..	0	2	7	3	3	1	16

The disease occurs much more frequently in men than in women. Reported statistics give the proportion as one woman to every four or five men. All but one of our patients were men, the proportion of the sexes

7. Clarke: Tubercular Lupus of Tongue, Palate and Gums, Tr. Path. Soc. London **27**: 148-149, 1876.
8. Schilferowitsch: Ueber die Tuberkulose der Mundhöhle, Inaug. diss., Odessa, 1887.
9. Zintmaster: Ann. Surg. **37**: 52, 1903.

being one to fifteen. This is probably due to the fact that trauma to the tongue occurs more frequently in men because of pipe smoking, carrying nails in the mouth, carious teeth, etc.

The tubercle bacillus may gain entrance to the tongue by: (1) direct inoculation from outside the body; (2) inoculation from sputum, as in pulmonary tuberculosis; (3) inoculation from the blood or lymph stream, as in miliary tuberculosis, and (4) spreading from adjacent tissues, as in lupus vulgaris of the face or mouth. One of our cases belongs to the first group, thirteen to the second group, one to the third group and one to the fourth.

Clinically, all cases of tuberculosis of the tongue fall into one of the following groups:

1. Nodular.
   (*a*) Superficial.
   (*b*) Deep.
2. Ulcerative.
   (*a*) Superficial.
   (*b*) Deep.
   (*c*) Fissured.
3. Papillomatous or warty.

Small, scattered and superficial nodules may occur in miliary tuberculosis. A solitary and superficial nodule may be seen in primary tuberculosis of the tongue, while the multiple and deep lesions occur only in secondary tuberculosis. Figure 1 represents a case of this type. The deep-seated nodules are scattered throughout the tongue, and are covered by unbroken mucous membrane. Lesions of this type may go on to caseation without ulceration.

Most of the ulcers begin as superficial nodule, but the patient's attention is not called to it until it breaks down and becomes slightly painful. The ulcer is by far the most common of all of the tuberculous lesions on the tongue. In all but two of our sixteen cases, the lesions were of this type. The ulcer may be small or it may cover one half or more of the surface of the tongue. The lesion is generally superficial, covered with a yellowish gray mucus, and surrounded by a reddish areola. Figure 4 illustrates this most typical type. A more or less harmless looking fissure may occur on the edge or dorsum of the tongue, which, when it is spread apart, may be found to be deep, extensive and branching.

The papillomatous or warty tuberculous lesion of the tongue is one of the rarest types. It resembles the papillomatous type of carcinoma. Figure 2 represents this type. The lesion was limited to the region of the circumvallate papillae, and suggested a congenital anomaly. The papillary projections resembled hypertrophic circumvillate papillae. The diagnosis of tuberculosis was made by pathologic examination.

The symptoms of which the patient complains vary with the type of lesion represented. As in the case of tuberculosis located elsewhere in the body, there are generally no symptoms until ulceration and secondary infection occur. The early symptoms are slight pain and burning in the ulcerated area. Late in the course of the disease, pain, salivation and limited motility of the tongue may be so marked that eating and speaking are interfered with. There is a moderate regional adenopathy in the cases with ulceration, a condition that is undoubtedly brought about by secondary infection.

The tuberculous lesion may occur anywhere on the tongue. In two of our cases, it was located on the tip of the tongue; in six, on the lateral borders; in five, on the superior surface; in two cases, at the base, and in one case on the inferior surface. In general, the lesions occur more often on the superior surface of the tongue than on the inferior, and the tip and lateral borders are more frequently involved than the posterior part.

The differential diagnosis of a tuberculous lesion of the tongue, in the absence of outspoken pulmonary involvement and microscopic examination of tissue, is a matter of considerable difficulty and importance. The mutilating surgical removal of an erroneously diagnosed carcinoma of the tongue, or the possible harmful effect of strenuous antisyphilitic therapy on a tuberculous patient, need only be mentioned as the possible results of a mistake in diagnosis.

Tuberculosis of the tongue must be differentiated from a primary sore, a gumma, an epithelioma, the traumatic and infectious ulcers, leprosy and the benign tumors.

A primary sore is usually more indurated, and the infiltration extends beyond the border of the ulcer. It is of limited duration. Dark field examination will reveal the presence of *Spirochaeta pallida*. In three of our patients, we were able to rule out this possibility only after repeated examinations.

A gumma generally occurs on the posterior part of the tongue, while a tuberculous lesion is more often on the anterior half or lateral borders. An ulcerating gumma is usually deeper than a tuberculous ulcer, and the walls of the lesion are more sharp. The complement fixation is positive in about 80 per cent. of the cases, and a therapeutic test is generally conclusive.

A carcinoma is usually more indurated, is almost always solitary, and often can be diagnosed only by a pathologic examination. It tends to occur at the same age, at about the same location and in the same sex as does tuberculosis of the tongue. Early diagnosis of carcinoma of the tongue gives the patient his only chance of a cure.

In the traumatic ulcers, there is generally some obvious source of trauma, and the ulcer heals rather promptly when this is removed. The infectious ulcers as seen in cases of aphthous stomatitis, Vincent's angina, etc., are seldom limited to the tongue, and they generally respond readily to local therapy.

Leprous nodules on the tongue are rare, and seldom, if ever, exist without other signs of the disease.

The benign tumors, such as angiomas, are not often difficult to rule out, because of their duration, lack of symptoms, and the fact that they occur at an early age.

After all of our clinical and laboratory procedures have been carried out, a large percentage of cases remain to be diagnosed by a pathologic examination. The pathologic picture of tuberculosis of the tongue is essentially that of tuberculosis elsewhere in the human body. There is a tubercle formation, with round cell infiltration, with some perivascular arrangement and the presence of the characteristic giant cells. It is often impossible to differentiate tuberculosis from syphilis pathologically without resource to animal inoculation or to special staining for the tubercle bacillus.

If a piece of tissue is to be removed for pathologic examination, the entire lesion or none at all should be removed. A tuberculous lesion that has been cut into breaks down rapidly, becoming more extensive and more painful.

In primary tuberculosis of the tongue, the prognosis is good when the entire lesion is removed surgically. When the lingual lesion is secondary to a pulmonary

process, it generally comes late in the course of the disease. Practically all of these cases end fatally. However, the surgical removal of a discrete tuberculous ulcer will prolong the life of the patient, and allow him to spend his remaining days in comparative comfort.

In the localized primary lesions as well as in the localized secondary lesions, the surgical removal of a V-shaped area gives the best result. The tongue of one of our patients with a primary lingual tuberculosis remained well after surgical removal of the lesion, and that of the patient suffering from miliary tuberculosis remained well and free from pain until his death three months later. The tongue, in one of our advanced pulmonary cases in which the sputum was laden with tubercle bacilli, remained well until the patient's death, fifteen months after the surgical removal of a painful tuberculous ulcer. In the extensive ulcerative cases, the cautery may be of some value. Curetting the lesion generally makes it more extensive. Lactic acid, phenol (carbolic acid) and alcohol, applied locally, are of little value. We treated one of our patients with Kromayer light, one with roentgen-ray therapy and one with radium therapy, all without success. Von Ruck [3] reports the cure of four cases with tuberculin therapy. White and Marcey [4] cured a tuberculous ulcer of the tongue in a patient with advanced pulmonary tuberculosis by supplementing general tuberculin therapy with local injections of tuberculin into the base of the ulcer. Aside from the surgical removal of a localized tuberculous lesion in the tongue, the therapy of this disease is essentially that of tuberculosis elsewhere in the body. Rest, forced feeding and tuberculin therapy, or some of its modifications, offer the only hope for cure.

CONCLUSIONS

1. Primary tuberculosis of the tongue seldom occurs.
2. Secondary tuberculosis of the tongue is more common than statistics would lead us to believe. We found fourteen (1 per cent.) cases in a total of 1,444 tuberculous patients.
3. Biopsies of questionable tuberculous lesions of the tongue should not be taken. The entire lesion should be removed, or none at all.
4. The best local treatment in our hands has been the surgical removal by a V-shaped incision of the solitary tuberculous lesion of the tongue.

REPORT OF CASES

Case 1.—K., a man, aged 51, who had advanced pulmonary tuberculosis with cavitation, a drug addict, had deep seated nodules scattered over the dorsum of tongue, which had occurred late in the disease. No ulceration was present (Fig. 1).

Case 2.—B., a man, aged 56, who had advanced pulmonary tuberculosis with cavitation, had a pea-sized, painful ulcer on the left side of the tip of the tongue. The ulcer was excised fifteen months before death, and the wound healed rapidly, without recurrence. The sputum was laden with bacilli.

Case 3.—L., a man, aged 38, who had advanced pulmonary tuberculosis with cavitation, had papillomatous lesions on the posterior surface of the dorsum of the tongue. The tongue lesion developed six months before there were any clinical symptoms of pulmonary involvement (Fig. 2).

Case 4.—D., a woman, aged 43, who had advanced pulmonary tuberculosis with cavitation, had an ulcer develop on the left side of the base of her tongue seventeen months after the clinical onset of disease.

Case 5.—B., a man, aged 22, who had advanced pulmonary tuberculosis with cavitation, as well as laryngeal and intestinal tuberculosis, had a pea-sized, punched-out ulcer on the inferior surface of his tongue (Fig. 3).

Case 6.—H., a man, aged 32, who had advanced pulmonary tuberculosis with cavitation, and intestinal and laryngeal tuberculosis, had an ulcer on the dorsum of the tongue 1 cm. in diameter.

Case 7.—G., a man, aged 49, who had advanced pulmonary tuberculosis with cavitation, had an ulcer appear on left posterior tongue nine months before there were any symptoms of pulmonary involvement.

Case 8.—S., a man, aged 57, who had advanced pulmonary tuberculosis with cavitation, and intestinal and laryngeal tuberculosis, had an ulcer 1 cm. in diameter on the left border of tongue. Under radium therapy, it became larger.

Case 9.—R., a man, aged 30, who had advanced pulmonary tuberculosis with cavitation, had a superficial ulcer 0.75 cm. in diameter at the tip, which grew larger under roentgen-ray therapy.

Case 10.—U., a man, aged 44, who had advanced pulmonary tuberculosis with cavitation, and intestinal tuberculosis, had a superficial ulcer 0.5 cm. in diameter, just to the right of the midline of the tongue. It grew larger under Kromayer light therapy (Fig. 4).

Case 11.—S., a man, aged 34, who had advanced pulmonary tuberculosis with cavitation, as well as laryngeal and rectal tuberculosis, had an ulcer on the right border of the tongue.

Case 12.—P., a man, aged 66, who had advanced pulmonary tuberculosis with cavitation, and laryngeal tuberculosis, had an ulcer at the base of his tongue, extending to the tonsillar region and the epiglottis.

Case 13.—L., a man, aged 35, had a lima-bean-sized lesion, one-half of which was ulcerated; it had a cartilaginous base, was not painful, and no adenopathy was evident. The right anterior quarter of the tongue was excised. The pathologic examination revealed the presence of tuberculous structure and tubercle bacilli. No other signs or symptoms of tuberculosis were found (Fig. 5).

Case 14.—S., a man, aged 32, came to the clinic complaining of a sore tongue. Otherwise, he was in good health. On the edge of the tongue, just to the right of the midline was a pea-sized, slightly indurated, nonpainful ulcer, which was excised and healed rapidly. Pathologically, the diagnosis was tuberculosis, and a roentgen-ray examination of the chest established the diagnosis of miliary tuberculosis. The tongue remained well until the patient's death two months later.

Case 15.—C., a man, aged 56, suffering from advanced pulmonary tuberculosis with cavitation, had ulceration on the left posterior part of the tongue, extending as far back as could be seen.

Case 16.—P., a man, aged 23, suffering from extensive lupus vulgaris of the face, gums and palate, had a lima-bean-sized superficial ulcer on the anterior, superior surface of the tongue. Radium therapy applied to the tongue was of some value, but did not cure the condition.

380 Post Street.

ABSTRACT OF DISCUSSION

Dr. Oliver S. Ormsby, Chicago: This paper gives us a clear conception of this uncommon disorder. I have seen no such cases in my practice, but have seen a limited number in the practice of others. These were superficial, painful ulcers of the tongue, the pain being the diagnostic feature. One's interest in anything depends on one's knowledge of it; and as most of us know little about this disorder, it is well for someone to bring it to our attention clearly.

Dr. Grover W. Wende, Buffalo: I am much interested in the report of cases of primary tuberculosis of the tongue. I can add a case in which the disease began in the tongue. It was characterized by superficial ulceration, with infiltration extending deeply into the tongue, giving an appearance of long, convoluted ridges. Biopsy demonstrated tuberculosis. The physical examination, which included a careful roentgen-ray examination, did not demonstrate any primary invasion of the lung. This case is greatly similar to that of Drs. Morrow and Miller's first report, although the whole tongue was enlarged. I wish to add that my case responded

well to radium plaque full strength with 1 mm. aluminum filter for four hours.

DR. ERWIN P. ZEISLER, Chicago: I am sure we have all been surprised at the large number of cases reported by Drs. Morrow and Miller. In this part of the country, tuberculosis of the mouth is rare. One or two cases have been presented at the meetings of the Chicago Dermatological Society. I was interested in this subject through a case of tuberculosis of the lip that I reported three years ago. In this case there was a solid enlargement of the lower lip with ulceration on the adjacent mucosa of the mouth as well as submental glands, and a carcinoma was suspected. Smears showed tubercle bacilli, and the histologic examination showed tuberculosis. I think that Jadassohn's is the best classification of tuberculosis in the mouth. He divides the cases into (1) lupous ulcers, (2) ulcers of miliary type and (3) those of nonmiliary type. The last he divides into a chancriform and an epitheliomaform type, and states that it is impossible to make the diagnosis without a histologic examination. As far as the treatment is concerned, in the case in which I was interested we had a fair result with deep roentgenotherapy. Surgical treatment was impossible, for the entire lower lip was involved and it could not be resected. I agree with Drs. Morrow and Miller that, if possible, surgical excision is the best treatment, especially for small ulcers; but with extensive involvement of the tongue I am rather skeptical about surgical intervention and believe that roentgenotherapy combined with acid nitrate of mercury or lactic acid locally would give good results.

DR. HOWARD FOX, New York: In regard to Dr. Morrow's opinions concerning the difficulty of diagnosis in lesions of the mucous membranes of the mouth in general and of the tongue in particular, there can be no doubt that they are much more difficult to differentiate than cutaneous lesions. This is frequently illustrated at our dermatologic meetings, where opinions regarding an ulcer of the tongue will be divided among syphilis, tuberculosis and cancer. A histologic examination will generally detect an epithelioma, but cannot always differentiate between syphilis and tuberculosis. I should like to ask Dr. Morrow in how many of the reported cases of primary tuberculosis of the tongue tubercle bacilli were found in smears from the surface of the ulcer. That bacilli can generally be found in secondary tuberculous ulcers is well known.

DR. HAROLD N. COLE, Cleveland: I was glad to hear Dr. Morrow say that he did not consider tuberculosis of the tongue rare. I think it is rather common, and that we overlook many of the cases. Answering the question of Dr. Fox: In the superficial type one is able to find tubercle bacilli in a good percentage of cases. That is one of the first things we do, making a stain the same as in any suspected sputum.

DR. F. W. CREGOR, Indianapolis: I have never encountered a case of primary tuberculosis of the tongue. The cases that I have seen have been secondary and easy of diagnosis. In a few cases of tuberculosis of the skin that I have encountered early enough to think an incision would eradicate the infection, the tuberculin injection with the definite reactive zone has offered an excellent guide to the incision; and in such a case as Dr. Morrow presented, this occurs to me as being a point of great value in making a diagnosis.

DR. FREDERICK A. FIGI, Rochester, Minn.: I wish to emphasize the statement of Dr. Morrow regarding the difficulty of differentiating between primary tuberculosis and syphilis of the tongue. Within the last year, we have seen two cases in which a diagnosis of tuberculosis of the tongue had been made from microscopic section. These cases, clinically, did not look like typical tuberculosis. Both patients had positive Wassermann reactions, and in both the condition cleared up under antisyphilitic treatment.

DR. I. L. MCGLASSON, San Antonio, Texas: In three cases of my own, I removed the lesion with the thermocautery and all healed satisfactorily.

DR. HOWARD MORROW, San Francisco: It is the ulcerative type of tuberculosis of the tongue that is painful. The nodular type is not painful, and it is the nodular type that so frequently is very hard to differentiate. In all our nodular cases we have had to make the dark field examinations and, further, do therapeutic tests. Those are the two things which are essential and which frequently help to make a positive diagnosis.

SOME RHINOLOGIC OBSERVATIONS

WITH SPECULATION CONCERNING INVOLUNTARY NERVOUS SYSTEM *

GREENFIELD SLUDER, M.D.
ST. LOUIS

In 1908, I [1] began observations on clinical manifestations which I thought were produced by disturbances of the nasal (sphenopalatine, or Meckel's) ganglion. Until recently these were mostly observations of painful phenomena that could be more or less correlated; i. e., there were recognizable pathologic changes in the ganglion district, with clinical phenomena that could be argued were secondary to them. Within the last three years, however, I and others have made some observations which do not fit into these categories, some of which have been reported, to wit: the control by cocainization of the nasal ganglion of: (1) external cricoidynia; (2) lower jaw toothache; (3) glossodynia; (4) earache in cases of eustachian tube and middle ear lesions; (5) earache secondary to cancer of the larynx; (6) the pain of laryngeal tuberculosis; (7) the pain of herpes of the shoulder; (8) relief of spasm of the esophagus (not reported); (9) relief of spasm of the face and upper respiratory tract; (10) all syphilitic headache; (11) malarial headache (unreported), and the control of ophthalmic migraine. Ophthalmic migraine is a set of phenomena that has an extensive literature, with various theories as to its production which cannot be discussed here. The attack, when complete, begins with scotoma or hemiopia followed by headache. Later come nausea, then aphasia, and finally hemiparesis. I have found that some cases of ophthalmic migraine can be relieved by injection of the nasal ganglion with alcohol and some by sphenoidal surgery, when lesions exist in those parts. But I once had a patient, aged 65, in whom the gasserian ganglion had been removed or a posterior root section had been done fourteen years before by Dr. Cushing for a major neuralgia of the trigeminus, with perfect relief. The patient continued, however, to have ophthalmic migraine, right and left, which she had had since girlhood. The nose was normal. Despite this, I found that the migrainous headache could be stopped by cocainization of the nasal ganglion. Injection of the ganglions with alcohol was followed by two years' relief from ophthalmic migraine, the occurrence of which had hitherto been every three to ten days. The patient had morning headaches from a narrowing of the sigmoid-rectal junction, which were relieved by abdominal exercises.

The observations of Fliess [2] and Koblanck [3] on the nasal control of dysmenorrhea are well known. I have had no experience with dysmenorrhea.

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* From the Laryngological Department, Washington University Medical School.

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

* Read in abstract before the Central Neuropsychiatric Association, St. Louis, Oct. 20, 1923, and before the American College of Physicians, St. Louis, Feb. 17, 1924.

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2. Fliess, Wilhelm: Die Beziehungen zwischen Nase und weiblichen Geschlechtsorganen, Leipzig and Vienna, 1897.

3. Koblanck: Taschenbuch der Frauenheilkunde, Ed. 3, Berlin and Vienna, 1921.

These phenomena occurred in cases in which there was no lesion in the ganglion district, but were relieved through the nasal ganglion. Other parts of the nose and throat were always cocainized as a control in estimating the psychic effect of cocain and the part the trigeminus might have played, with negative result.

Other phenomena, to wit, (12) lumbago; (13) intercostal pain (neuralgia), gastric pain, nausea and diarrhea, and (14) nodular headache have occurred in those of my patients in which a definite lesion existed in the ganglion district, and were relieved through the ganglion (by cocainization or surgery). The same control experiments were performed.

An outline sketch of the cases is pertinent.

Class 1. A strong, normal man, aged 26, had a painful sore spot 1 cm. in diameter over the cricoid cartilage, which came in the course of an acute infection of the nose and throat. It persisted six months after the acute attack, and resisted all my efforts to help it, including tonsillectomy for chronic tonsillitis. The next year he had a similar attack. This time I [4] tried cocainization of the nasal ganglion. It stopped the pain for several hours. After four cocainizations, the relief was permanent (two years).

Class 2. Toney [5] reports a case of lower molar toothache from caries. For ten nights he controlled it by cocainizing the nasal ganglion. The tooth was then extracted.

Class 3. Dean [6] reports cases of glossodynia relieved by cocainization and injection of the nasal ganglion. I have verified his observation.

Class 4. I [7] have reported cases of earache from eustachian tube and middle ear inflammatory lesions that were controlled by cocainization of the nasal ganglion. This observation was verified by H. I. Lillie.[8]

Class 5. Clerf [9] reports that earache secondary to cancer of the larynx is controllable by cocainization of the nasal ganglion.

Class 6. Gundrum [10] has controlled the pain of laryngeal tuberculosis by cocainizing the nasal ganglion.

Class 7. Davis [11] has stopped the pain of herpes of the shoulder by cocainizing the nasal ganglion.

Class 8. A woman, aged 50, seen in May, 1924, had spasm of the esophagus of ten days' duration. A roentgenogram showed the location to be at the third, fourth and fifth dorsal vertebrae, with the bismuth bolus resting on top of it. The patient was famished for food and drink and had lost 10 pounds (4.5 kg.). The condition was completely relieved by full cocainization of the nasal ganglion. The pharynx was heavily cocainized to get the postnasal examination. This did not relieve the spasm of the gullet. In the course of a later general investigation, a 4+ Wassermann reaction was found by Vernon Mastin. Antisyphilitic treatment was then begun. The patient is now in much better general health and has gained 15 pounds (6.8 kg.). The spasm of the gullet has not returned. Syphilis may have been its etiology.

Class 9. I have had two cases of spasm of the entire face accompanied by spasm of the throat, larynx, esophagus and diaphragm. One was relieved (or cured) by injection of the nasal ganglion; the other, by sphenoid surgery. I have had two other cases of spasm of the entire face in which these measures failed.

Class 10. Goldschmidt-Osmund [12] has reported that all syphilitic headache can be relieved by cocainization of the nasal ganglion or sphenoidal district. I have confirmed his observation in large part. I have not, however, had the chance to try it in *all* syphilitic headache.

Class 11. Bryan [13] has observed that malarial headache (one case unreported) can be controlled by cocainization of the nasal ganglion.

These cases showed no lesion in the nasal ganglion district.

Class 12. A frail woman, aged 40, had been my patient for twenty years. In the beginning she had a high grade postethmoidal-sphenoidal inflammatory lesion without pus or hyperplasia. She suffered severely with a "lower half" headache.[14] It was controlled by cocainization of the nasal ganglion. I injected plain 95 per cent. alcohol four times. Some relief was obtained from each injection. The injections were very painful, however. Once the pain from the alcohol ran down the back, to end worst in the coccyx. Another time the pain went severely down the thigh and leg, to end in the great toe of that side. Three years passed. She lived at this time in the South. Before her return to St. Louis she showed an easily recognizable postethmoidal-sphenoidal suppurating lesion with severe "lower half" headache. I operated radically for this. She has had periods of relief with interruptions by acute inflammatory processes in the district, when she suffers severely a "lower half" headache. Many of these headaches are accompanied by severe lumbago. At times she has lumbago alone. Intrasphenoidal cocainization controls the headache and the lumbago, whether it is accompanied by headache or not. From time to time this patient has had nearly all the symptoms usually associated with "lower half" headache as isolated phenomena.[15] She has, however, added lumbago to the list. Since I learned this with this patient, I have occasionally observed it in others.

Class 13. Dr. W., aged 55, a surgeon of international renown, has had for twenty years an occasional severe "lower half" headache always following an acute infection of the postethmoidal-sphenoidal district. In the time between these infections (colds) he has been well. For him I can always stop the front or back half of the headache at will by placing the cocain for the maxillary side of the ganglion (external) or the vidian side (internal) to the ganglion. Latterly (three years) he has had such attacks accompanied by gastric pain with or without diarrhea, and sometimes by intercostal pain, "neuralgia." These phenomena have ceased in ten minutes after placing cocain for the nasal ganglion.

Cocainization of the nasal ganglion for the pain of pleurisy in my experience has failed to give relief.

Class 14. I have seen nodules [16] appear in the nape of the neck during the attack of "lower half" head-

4. Sluder, Greenfield: External Cricodynia: Its Control Through the Nasal (Sphenopalatine-Meckel's) Ganglion, J. A. M. A. **80**: 690 (March 10) 1923.

5. Toney, L. E.: Control of Lower Jaw Toothache by Cocainization of the Nasal (Sphenopalatine-Meckel's) Ganglion, J. A. M. A. **81**: 1609 (Nov. 10) 1923.

6. Dean, L. W.: The Control of Glossdynia Through the Nasal (Sphenopalatine-Meckel's) Ganglion, South. M. J. **15**: 856 (Oct.) 1922.

7. Sluder, Greenfield: The Control of Earache Through the Nasal (Sphenopalatine-Meckel's) Ganglion, J. A. M. A. **78**: 1708 (June 3) 1922.

8. Lillie, H. I.: Otalgia and Mastoidalgia Not Indications for Operation on the Mastoid Process, J. A. M. A. **79**: 431 (Aug. 5) 1922.

9. Clerf, L. H.: Control Through the Nasal Ganglion of Earache of Laryngeal Origin, J. A. M. A. **82**: 630 (Feb. 23) 1924.

10. Gundrum, L. K.: Personal communication to the author.

11. Davis, C. L.: Personal communication to the author.

12. Goldschmidt-Osmund, Bruno: Ueber die Beiinflussung migraenartiger Zustaende vom Keilbein aus, Arch. f. Laryngol. u. Rhinol. **34**, 1921.

13. Bryan, W. M. C.: Personal communication to the author.

14. Sluder, Greenfield: Concerning Some Headaches and Eye Disorders of Nasal Origin, St. Louis, C. V. Mosby Company, 1918.

15. Sluder, Greenfield: "Lower Half Headache" (Neuralgic) of Nasal Origin: Glossodynia, Otalgia, Nausea, Paragusia, Vertigo, Scotoma, Photophobia, Rhinorrhea and Asthma as Isolated Phenomena, J. A. M. A. **79**: 1898 (Dec. 2) 1922.

16. Sluder, Greenfield: A Case of Nodular Headache of Nasal (Sphenopalatine-Meckel's) Ganglionic Origin, Ann. Otol., Rhinol. & Laryngol. **30**: 1053 (Dec.) 1921.

ache. I have seen eight such cases. In one, a woman, aged 40, nodules appeared in the nape of the neck with many of the severe "lower half" headaches from which she suffered for twenty-five years. On one occasion I saw them disappear within two hours after full cocainization of the nasal ganglions; untreated, they would stay for seven to ten days. In the other cases they disappeared as the case improved.

NERVE SUPPLY OF THE NOSE

Aside from the olfactory and the nervus terminalis there are three sources of nerve supply for the nose: 1. The trigeminus, first division through the anterior ethmoidal or nasociliary nerve; also the second division through branches from the nasal ganglion. 2. The seventh through branches from the nasal ganglion. The ganglion gets this supply through the great superficial petrosal, a branch from the geniculate ganglion of the seventh. 3. The involuntary nervous system, which sends a supply (cranial autonomic) through the great superficial petrosal to the nasal ganglion. The great deep petrosal sends a sympathetic supply from the carotid plexus.

Explanation of the phenomena mentioned above is difficult or impossible with our present knowledge of the nervous system. Elimination of the general effect of cocain seems to me to have been satisfactory. In this connection, one naturally thinks of the trigeminus and the afferent properties of the facial [17] with their segmental overlappings. But in thinking of the trigeminus as a means of explaining any of these phenomena, it is hard to understand why cocainization of the anterior ethmoidal, a branch from the first division, should not give the result, as well as cocainization of the fibers from the second division that are found in the nasal ganglion. It is also difficult or impossible to understand how cocainization of a sensory nerve at rest can influence, by its segmental overlapping, motor and sensory phenomena in more or less remote parts of the body. This is equally true of the fibers of the seventh nerve, which transmit the deep sensibility of the face.

Prominent among these inexplicable phenomena are lumbago and diarrhea, and the nodules in the neck that are occasionally met. The latter may be lymphatic glands that swell under the influence of the involuntary nervous system. They are, however, not always such. Auerbach [18] removed them in one case. But the microscopic examination of the tissue failed to give a conclusion. In an effort to explain these, the involuntary nervous system comes forth as the system that connects with everything in the body. But to use it in explanation, we must assume attributes for it that are unknown at present and are impossible to prove in animals. The accepted belief, as is well known, is that the involuntary nervous system is efferent only. There are, however, fibers that accompany the involuntary nerves that have their cell bodies in the spinal ganglions. Ranson [19] states that the impulses which travel over these fibers do not under ordinary conditions give rise to sensations but expend themselves in the production of visceral reflexes. Under pathologic conditions they often lead to sensations of pain. It may be that these fibers play a part in these inexplicable pain phenomena; but there remain others that are not painful which leave one with a tendency to speculate as to whether there are not other properties in the involuntary nervous system that explain some of the phenomena and are unknown.

The nasal ganglion is the only one of the involuntary nervous system that is superficial. Here it is available for easy experiment and accessible for surgery. And in some results obtained when the nose was normal, one is forced to think that they were obtained by a block or break in the transmission pathway of the involuntary nervous system. But it still remains difficult to understand how such a break in an involuntary system apparently at rest can produce these results.

In the cases of Class 12 (lumbago) and those of Class 13 (gastric pain and diarrhea), also those of Class 14 (nodules in the neck), there were definite lesions in the ganglion district; and it might well be argued that these were referred phenomena, which leaves one with something of a feeling that they were cause and effect; and an understanding of how the results were obtained. No such arguments or understanding can (to my mind) be conceived for the cases of the other classes in which there was no lesion in the ganglion district.

The relief of ophthalmic migraine by nasal ganglion blocking in a normal nose is remarkable. Not all migraines are the same in mechanism and susceptible of being relieved that way. There is, however, no unique case. Later we shall find others like it. It argues the part of the involuntary nervous system in migraine.[20]

There remains an inexplicable chapter in the experiences of those who have treated the nasal ganglion; namely, what can explain the success of cocainization of the ganglion and at the same time explain the failure of the injection of it with alcohol. Such cases are met from time to time and are still an enigma. Some of these are deceptive sphenoid cases, and I have obtained relief for them by sphenoid surgery. But there are others that are not in this class. Williams [21] and Senseny [22] have made some interesting and helpful observations concerning the endocrine system which may explain some of these failures. They have found that in some of the atypical "lower half headaches" the administration of some of the endocrine extracts have relieved the symptoms.

Cocainization of the nasal ganglion (in my experience) will not stop the pain of sphenoiditis or brain tumors.

It is rather unfortunate for us as rhinologists that a large percentage of the classes of cases here considered have little or nothing about them to suggest rhinologic consultation, and for the most part never come under that observation. Before the frequency of success or failure for the experiment with the nasal ganglion can be determined, we should have cooperation with internists and neurologists. Naturally, such patients seek their aid. It seems to me that a routine nasal ganglion test in obscure or difficult cases might give additional and possible surprising results.

(During the week of Oct. 7, 1924, I treated two cases of lumbago that were relieved by both nasal ganglion and anterior ethmoidal cocainization. General cocainization of the throat gave no relief in either case.)

3542 Washington Avenue.

17. Davis, L. E.: The Deep Sensibility of the Face, Arch. Neurol. & Psychiat. **9**: 283 (March) 1923.
18. Auerbach, Sigmund: Headache—Its Varieties, Their Nature, Recognition and Treatment, Translation by Ernest Playfair, London, 1913.
19. Ranson, S. W.: Anatomy of the Nervous System, Philadelphia, W. B. Saunders & Co., 1920.
20. Liveing, Robert: Sympathetic Theory, in On Migraine, Sick Headache, etc., London, 1873.
21. Williams, C. B.: Nasal Ganglion Neurosis: Observation as to Possible Endocrine Aspects, Texas State J. Med. **19**: 289 (Sept.) 1923; Further Observations on Nasal Ganglion Neurosis, Laryngoscope **34**: 440 (June) 1924.
22. Senseny, E. T.: Observations Concerning the Relation of Endocrine Changes to Nasal (Sphenopalatine) Ganglion Neurosis ("Lower Half" Headache), read before the American Laryngological, Rhinological and Otological Society, St. Louis, May 29, 1924; to appear in its Transactions, 1924.

ABSTRACT OF DISCUSSION

DR. A. J. CARLSON, Chicago: One of the men who discussed the previous paper said there was nothing new in that paper. That cannot be repeated of Dr. Sluder's paper. There is unquestionably something new in this paper, and the question is, Is it true? I quite agree with one of the statements made, that these results cannot at present be explained by anything we know regarding the invasion of the region cocainized. The first thing we naturally think of is that the results are largely post hoc propter hoc results. But if one will read Dr. Sluder's paper one will get the impression that his results cannot be explained on that basis. The next possibility, of course, is that the cases in which he has had success were cases of hysteria and were cured by suggestion. But, as he remarks, cocainizing the lower part of the nose would be just as successful, from the standpoint of suggestion, as cocainizing the ganglion. The third solution, of course, is the general systemic effect of cocain. One cannot cocainize the ganglion without having the cocain absorbed by the system, and Meltzer showed years ago that the local application of cocain has a general systemic action, particularly on pain. But Dr. Sluder seems to have eliminated that, because in some cases he applied cocain to every part of the mucous membrane and did not get results. Of course, we know that pain can be inhibited temporarily by directing attention to other things, but I do not think that is the explanation. As a matter of fact, there is enough in this work to constitute a real challenge to the physiologist. I should like to see Dr. Sluder try this method on headaches that are unquestionably due to intracranial pressure. He says it does not work. Of course, in many cases of headaches there are motor phenomena besides. At present I see no way to attack the problem experimentally in man, because we must see what happens to the vasomotor condition in various parts of the body that simulates paralysis of that region.

DR. HENRY M. GOODYEAR, Cincinnati: Dr. Sluder reports a case in which, following the injection of alcohol, the patient had pain not only in the chest and hip, but extending down the leg into the great toe. About three months ago I saw a patient who gave the following history: Five years previously he had developed headache with a typical sphenopalatine syndrome—pain about the eye and temporal region, over the occipital region on the same side, in the shoulder and over the left side of the chest, resembling a precordial pain, to the hip and down the left leg into the great toe. In five years he had had all sorts of treatment, and three times, in spite of a negative Wassermann reaction, he had quite intensive antisyphilitic treatment. When he came to me I cocainized the sphenopalatine ganglion, and the pain immediately disappeared. A week or ten days later I cocainized it again, and the pain disappeared. He had a very irregular septum, the roentgenogram showed some trouble about the posterior ethmoid region, and there was considerable pressure on the left turbinate, so I did a submucous resection and exenterated the posterior ethmoid cells on that side. The sphenoid appeared to be normal. He seemed to be better for a couple of weeks, then the old trouble recurred. I cocainized him probably eight times at intervals of from a few days to two weeks. The last time I cocainized him previous to an injection was about five weeks ago, and he was relieved that day. The pain came back at night and he came back three weeks later. This time he said he could not withstand the pain any longer, and that he could not sleep. So I injected the sphenopalatine ganglion and he came back the next day and said he slept all night. It is now about twelve days since the injection, and he has been free from pain. This was the most extensive case I had ever seen. Looking through the literature I was unable to find any case reported in which the pain had extended down as far as the great toe.

DR. GREENFIELD SLUDER, St. Louis: I am sorry that time did not permit Dr. Carlson to take up some of the other problems; namely, the relief of spasm of the esophagus and various other spasms, and far removed pain, such as lumbago. Dr. Goodyear's case is one of those that is occasionally encountered in postethmoid sphenoidal surgery. Although surgery was satisfactory, the relief was obtained through the nasal ganglion. The ganglion is constantly exposed, it is superficial, and may readily be disturbed by an inflammatory process; and the patient will develop pain again. Dr. Pollock had a case in which he injected the nasal ganglion and it was followed by sciatica. A perusal of Dr. Pollock's report leaves a doubt concerning the patient. The man or woman was highly neurotic and had had a great many nervous difficulties, and it is quite possible that the injection of the nasal ganglion did not produce the sciatica. But granting that it did, it still argues some occult power unknown in the involuntary nervous system.

THE EX-SERVICE MAN AND HIS LUNGS

A STUDY OF TWELVE HUNDRED CASES

JOHN B. HAWES, 2D, M.D.
Consultant in Tuberculosis, District 1, U. S. Veterans' Bureau; President, Boston Tuberculosis Association
BOSTON

During the last four years I have seen, not only in an official capacity but also in private practice, a large number of ex-service men—well over 2,000 in all. I have seen these men at my own office and at a nearby government hospital, where they are sent by the bureau for study and observation as to tuberculosis. At the latter institution by the time I see them, the men have all been carefully studied by means of the roentgen ray, temperature and pulse charts, and laboratory examinations. The decision as to whether or not they have tuberculosis, active or inactive, and if not, what is the trouble and what is the best thing to do in each instance, rests with me. As a result, therefore, of what may be justly called a long and extensive experience and intimate contact with ex-service men and their lungs, I have arrived at certain fairly definite conclusions concerning this subject.

Tuberculosis is, of course, the chief problem that any one dealing with the lungs of the ex-service man has to solve or try to solve. Next in importance comes gas and its late effects, and then influenza and the puzzling question as to whether or not it did any permanent damage to the lungs, and if so what and what to do about it; and then, finally, the less frequent but none the less trying conditions: chronic bronchitis, nontuberculous pleuritis, asthma, bronchiectasis and others still more rare.

Statistics in such a study as this are not of any great importance, in my opinion, except in a general way. I present certain figures, therefore, merely to show how the main groups are divided. I have accurate and detailed records of something over 1,200 men. The total number that I have seen at various hospitals and sanatoriums concerning whom I have no personal record is far greater than this. These 1,200 cases of which I have detailed records may be roughly divided into groups as follows:

1. Tuberculosis, active and inactive.
2. Cases wrongly diagnosed as tuberculosis.
3. Gas and its complications.
4. Influenza and its complications.
5. Nontuberculous pulmonary conditions.

TUBERCULOSIS, ACTIVE AND INACTIVE

Tuberculosis is apparently the great diagnostic dumping ground. Twenty years ago, when I first became interested in lung conditions and especially in tuberculosis, I was the fool who stepped in and made early diganoses when older and doubtless wiser physicians were unwilling to do this. All of my medical

life, until recently, I have spent teaching and urging the earlier diagnosis of tuberculosis. The situation at the present time, however, is strikingly different in that I am constantly seeing men who have been told that they had tuberculosis and in many instances treated for it in whom I could find no evidence of such disease. Even in those cases in which the diagnosis of pulmonary tuberculosis was a correct one, in far too many instances apparently little or no attempt was made to decide whether or not the disease was active or inactive and in need of rigorous sanatorium treatment or otherwise. Of 268 men in whom I made a diagnosis of pulmonary tuberculosis, ninety-eight required sanatorium treatment while 170 were in an arrested condition with inactive disease and, as far as I could ascertain, had never had active tuberculosis. The great majority of the latter group, however, had spent some time in a tuberculosis hospital or sanatorium.

WRONG DIAGNOSIS OF PULMONARY TUBERCULOSIS

In addition to the group of men who had pulmonary tuberculosis in some form, there was another large group; namely, that made up of cases in which a diagnosis of tuberculosis had been, in my opinion, wrongly made. There were 182 men in this group, comprising 15 per cent. of the whole number of cases. Each of these men had been definitely diagnosed as having pulmonary tuberculosis, and had been told so and many of them had spent months in a tuberculosis hospital or sanatorium. I was unable to confirm this diagnosis in these 182 men. That my figures are not too high as to this is shown by the rest of examinations of men I have seen at a nearby government hospital. To this institution, as mentioned above, the Veterans' Bureau sends men diagnosed as having tuberculosis concerning whose diagnosis and treatment there was some question. The men are closely observed over a period of from two weeks to two months, with careful temperature and pulse, laboratory and roentgen-ray examinations. When ready, they are submitted to me with all the data at hand for a final decision as to diagnosis and disposal. Out of 148 such men seen recently, in only fourteen, or 9 per cent., was active tuberculosis found to be present, while in fifty-seven, or 38 per cent., previously diagnosed as having tuberculosis, I could find nothing wrong with the lungs, not even that almost ever present and much abused condition, chronic bronchitis. The causes of these errors in diagnoses are as follows:

1. *Failure to spend sufficient time in history taking and in studying the patient's symptoms.* I admit that it is difficult to obtain a good history, owing to the fact that there are so many men anxious for compensation who deliberately exaggerate their symptoms, and an equal number of others who, simply because of gassing or some other cause, are in a psychoneurotic condition which inevitably leads to exaggeration and multiplication of their ills. This, however, makes it all the more important to take plenty of time.

2. *Lack of temperature and pulse records.* If in each doubtful case there were an accurate record of temperature and pulse for a week or even less, there would be fewer mistakes. Patients who have a constantly normal temperature and pulse rarely need sanatorium treatment.

3. *Overemphasis on roentgen-ray findings.* A tuberculous process of any extent leaves a scar in the lungs clearly demonstrable on roentgen-ray examination, but in the great majority of cases neither the roentgen ray nor the man who takes it can tell whether the disease is old and inactive or in need of institutional treatment or not. This question must be decided by the clinician. I encountered many cases in which the diagnosis of tuberculosis—and this almost invariably meant sanatorium treatment as well—seemed to have been based on roentgen-ray evidence alone.

GAS AND ITS COMPLICATIONS

Out of the 1,200 men on whom this study is based, 344 suffered or said they suffered from the effects of gas. From a fairly large and intimate acquaintance with this subject, I have come to the conclusion that gas did far more harm to the nervous system or mentality of the men than it did to their lungs. Even the roentgen-ray men, or rather those with whom I have discussed this subject, who at first thought they found definite pathologic changes consisting of a generalized increase in fibrous tissue in gas cases, now admit that they are not at all sure that gas left any really characteristic roentgen-ray picture. Certainly, it was a minimal factor as far as the development of tuberculosis was concerned. Of 344 men who were gassed so badly as to be laid up more than two weeks (which I made an arbitrary minimum standard), in only nineteen, or 5 per cent., could I see that gas had been any factor in a subsequently developing tuberculous process.

On the other hand, the relation between gas and a chronic bronchitis was far more intimate, as shown by the fact that of the total number, 344, of gassed men, 147, or 43 per cent., had a chronic bronchitis which apparently dated from their gassing. A diagnosis of a neurosis pure and simple was the only one I could make in more than 25 per cent. of these gassed men. They all suffered from practically the same symptoms: (1) pain or a sense of constriction in the chest; (2) shortness of breath and general weakness, and (3) coughing and raising.

All these symptoms are apt to be worse during or just prior to wet or stormy weather. Treatment is largely psychologic, and consists in assuring these men, first, that they do not have tuberculosis; secondly, that their condition is a self-limited one which will get well of itself slowly, perhaps, but surely, and, finally, impressing the fact on them that they will be much better off at work than idle.

INFLUENZA AND ITS COMPLICATIONS

Influenza seemed to have been a definite factor in the condition of 193 men. Tuberculosis apparently followed influenza or was reactivated by it in seventeen cases, or a trifle over 8 per cent. It was a more striking factor as the cause of a chronic bronchitis and a psychoneurosis, however, as shown by the figures 21 per cent. and 18 per cent., respectively, as compared with 8 per cent. in tuberculosis. Treatment is along exactly the same lines as in the gassed patients, particularly in assuring these men that they do not have pulmonary tuberculosis.

NONTUBERCULOUS PULMONARY COMPLICATIONS

This group comprises 140 men, or 12 per cent. of the whole, and includes nontuberculous pleuritis, thickened pleura, bronchiectasis, lung abscess, asthmatic bronchitis, asthma and old empyema with contraction, scar tissue and a soggy lung. Diagnosis is not difficult, and ought not to be confused with tuberculosis. Treatment naturally varies according to the diagnosis, but here again the fear and dread of tuberculosis must be removed before good results can be obtained.

SUMMARY AND CONCLUSIONS

1. A study of the ex-service man and his lungs, based on more than 1,200 cases, shows that tuberculosis and its diagnosis and treatment is the greatest problem.

2. Tuberculosis is wrongly diagnosed chiefly because of too great dependence on roentgen-ray evidence.

3. It is obvious that the distinction between active cases requiring hospitalization and inactive cases requiring only supervision should be clearly drawn.

4. Gas and influenza are only minor factors, as far as tuberculosis and its development is concerned.

5. With the exception of a moderate degree of chronic bronchitis, which may often be properly attributed to the late effects of gas or influenza, it is clear to me that both gas and influenza had a far greater effect on the nervous system than on the respiratory system of the ex-service man.

11 Marlborough Street.

ALCOHOL INJECTION OF BRAIN CORTEX IN JACKSONIAN EPILEPSY *

CHARLES E. DOWMAN, M.D.
Assistant Professor of Surgery, in Charge of Neurologic Surgery, Emory University School of Medicine
ATLANTA, GA.

Practically every case of jacksonian epilepsy should be subjected to an exploratory craniotomy in the hope of finding and removing a lesion causing the attacks. Unfortunately, those performing such exploratory operations are not infrequently disappointed in not finding such removable lesions. The problem under such circumstances is one of grave importance to the patient, and one that causes the neurologic surgeon considerable worry. Many years ago Sir Victor Horsley recommended excision of the so-called "epileptic zone," a procedure, however, of very doubtful value in that the defect is replaced by scar tissue, which, in turn, may give rise to irritative phenomena. In the two cases reported here, the so-called epileptic zone was first mapped out by faradic stimulation and then injected with 95 per cent. alcohol. I have been unable to find in the literature any reference to the clinical use of this method. Koljubakin and Uroda [1] proved that in animal experiments the operation is excellently borne and no secondary adhesions of the structures occur, although histologically all the cortical cells in the area of the injection, except the neuroglia, were found degenerated.

REPORT OF CASES

CASE 1.—*History.*—M. S., a white girl, aged 18 years, referred by Dr. Charles C. Hinton of Macon, Ga., was admitted to the Piedmont Hospital, March 26, 1924, with the diagnosis of tumor of the brain. March 31, a right craniotomy was done and a very large gliomatous cyst of the right temporal lobe found. The cyst contained 165 c.c. of yellow fluid. The lining of the cyst was treated with Zenker's fluid in the hope that reaccumulation of the cystic fluid might be thus prevented. After the cyst had been evacuated and the lining treated, there was an enormous collapse of the temporal lobe, causing a large dead space in the cranial cavity. This was filled with physiologic sodium chlorid solution, the dura sutured, the bone replaced and the scalp closed. On the day following the operation, the patient began to have an occasional convulsive seizure characterized by twitching of the left facial muscles and conjugate movements of the eyes and head to the left. From April 1 to 3, the patient had from eight to ten such seizures daily, the attacks being very light, and apparently kept under control by intramuscular injections of 5 c.c. of 25 per cent. magnesium sulphate solution. April 4, the attacks became more frequent, although they could be partially controlled by giving 10 c.c. of a 10 per cent. solution of magnesium sulphate intravenously every four to six hours. April 5, the seizures became more and more frequent in spite of all medication, and by 8 p. m. had become almost continuous. Each seizure was identical with the others, involving only the left side of the face and the conjugate movements of the head and eyes to the left. The duration of each attack was about twenty seconds, and there was an interval of from thirty seconds to one minute between the attacks. At 10 p. m., one-half grain of morphin was given and the convulsions were again controlled for the time being. At 4 a. m., April 6, the attacks began again and numbered over 200 during the next six hours. They continued to become more severe and more frequent in spite of all medication. By 10 a. m., the patient's condition had become so desperate that she was taken to the operating room.

Operation and Result.—At 10:20 a. m., April 6, the wound was reopened and the bone flap turned down. There was no evidence of bleeding under the bone. The dura was opened so as to expose the precentral area and the posterior part of the second and third frontal convolutions. The whole of the exposed cortex was greatly injected, and that area just above the sylvian fissure was mottled in appearance. The precentral area was stimulated with a mild faradic current, and the facial area mapped out. The area for conjugate movements of the head and eyes to the left was also similarly verified. These two areas were now thoroughly injected with 95 per cent. alcohol. This was accomplished by means of a very small hypodermic needle inserted 5 mm. into the cortex in several places. The injections were made slowly, and the needle held in place for several seconds after each injection, until the cortex assumed a cooked, grayish appearance, as otherwise the alcohol would have immediately escaped from the needle puncture before sufficient coagulation had been obtained. The dura was then closed, the bone replaced and the scalp sutured.

During the first four hours following the operation, there occurred three or four slight convulsions. Immediately after the operation, the patient regained consciousness and began to talk. When the attacks were so frequent, she was unable to speak and was apparently unconscious. After the operation, she explained that she knew what was happening, but was unable to express herself, either by words or by signs. During the first twenty-four hours after the cortical injection there was a paresis of the left facial movements and of the conjugate movements of the eyes to the left. This began to disappear after twenty-four hours, and by the third day there was no evidence of paralysis whatever. Her further progress was practically uneventful. There was no return of the convulsions, and the patient was discharged from the hospital, May 4, in excellent condition.

June 13, the patient had two attacks of a few seconds' duration, characterized by contractions of the masseter muscles and batting of the eyelids, right and left. There were no movements of the left side of the face, and no involvement of the conjugate movement of the eyes and head to the left. She was last seen, July 4, 1924, and was in excellent condition.

It is realized that this case was not one of true jacksonian epilepsy, according to the generally accepted view of this condition. The case, however, was one of acute jacksonian manifestations due to cortical irritation. This irritation was doubtless caused by some of the ingredients of the Zenker's solution escaping from the treated cyst wall into the salt solution, which was used to fill the dead space in the cranial cavity at the time of the first operation. These irritative phenomena were unquestionably stopped by the injection

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* From the Piedmont Hospital.

1. Koljubakin and Uroda: Injection of Alcohol into Animal Brain, Zentralbl. f. Chir. 51: 329-372 (March) 1924; abstr. J. A. M. A. 82: 1487 (May 3) 1924.

of alcohol into the involved cortex. It was expected, and explained to the patient's family, that the proposed injection would cause a permanent paralysis of the left facial movements, and the conjugate movements of the head and eyes to the left. The fact that such a paralysis lasted only twenty-four hours is a point of added interest.

CASE 2.—*History.*—C. G., a white man, aged 20, referred by Dr. Harvey Cushing of Boston, was admitted to the Piedmont Hospital, May 13, 1924. The patient began to have convulsions at 4 years of age, and these had continued with more or less frequency ever since. The attacks began with a twitching of the fingers of the right hand, particularly the index finger; soon after the onset the jerking involved the whole hand, then the arm and shoulder, and then the right side of the face. In some of the very severe attacks, the right leg had been involved, but only after the movements had developed in the order mentioned above. A few times the convulsions had become general after having begun as stated above. Unconsciousness had never occurred, however, even in the generalized attacks. The attacks had been purely motor in character, with no sensory disturbances whatever. On a few occasions, after the attacks had been very severe, there had been a temporary motor paralysis of the right arm and hand lasting about five minutes. Even when the paralysis did not occur, there was a slight weakness in the right hand, lasting five minutes after the seizure. The attacks had varied in frequency, occurring at intervals of a few days to several months, depending on whether or not bromids were being taken. Since the patient became 16 years of age, they had gradually become more and more frequent. There was always a slight speech disturbance immediately after the attacks, but none whatever between the seizures. There was nothing in the past health that might have caused the convulsions, except, perhaps, a slight injury which occurred at 2½ years of age, when the patient fell off a porch and was unconscious for a few seconds. He vomited several times during the six or eight hours following the fall, but next morning seemed normal in all respects. The family history was negative.

The neurologic examination gave practically normal findings except a slight internal strabismus, which had been present all the patient's life, sluggish right abdominal reflexes and rather hyperactive but equal knee-jerks. The blood and spinal fluid examinations were negative for syphilis. A general examination gave normal findings.

Operation and Result.—May 19, under procain-epinephrin infiltration anesthesia, a bone flap exposure of the left rolandic area was made. The cortical vessels were larger and apparently more numerous than usual, and there was an unusually large collection of subarachnoid fluid. No evidence of gross lesion of the brain was found. The subarachnoid fluid was allowed to escape through several needle punctures in the membrane, and with mild faradic stimulation, the areas for the arm and hand were mapped out. These lay entirely in front of the rolandic fissure. The stimulant was so exact that the isolated area for flexion of the index finger, for example, was determined. The areas controlling the movements of the hands and fingers were then injected with 95 per cent. alcohol, by means of a fine hypodermic needle, inserted from 0.5 to 1 cm. into the cortex. The injection was continued until the area of cortex had assumed a cooked, grayish appearance. The whole injected area was not larger than one's thumb nail. After the injection had been completed, faradic stimulation failed to give any response. Just as the injection was being made, the patient complained of a sensation of numbness in the right hand and fingers, an observation of physiologic interest as the injection was entirely in front of the rolandic fissure. Immediately after the injection, the patient had three short jacksonian attacks, during which the movements involved first the right hand and then the right arm. The dura was then closed, the bone flap replaced and the scalp sutured.

During the first day following the operation, there were two slight attacks of twitching of the right arm and hand. There were no more such attacks, however, while the patient was in the hospital. There was a subjective sensation of numbness in the right hand and fingers, and a loss of stereognostic and joint sense in the right hand and fingers, which lasted seven days and then cleared up. At no time was there a disturbance of touch and pain sensation. During the first five days there was a marked motor weakness, amounting almost to a complete motor paralysis of the right hand and fingers. This gradually cleared up so that at the end of ten days the right hand grip was practically normal. The patient was discharged from the hospital, June 9, 1924, in excellent condition.

July 17, a letter was received from the patient's father from which the following is quoted: "I am glad to say that C. is doing very nicely. He has had two symptoms which seem to have affected only the muscles of his face and neck, and lasted only for a few seconds. He has had one complete seizure which caused him to fall, but says that it did not affect his right hand, being more in the right shoulder and the rest of the body, but, to the best of his knowledge, it did not last more than thirty to forty-five seconds. He says that he believes that he has less use of his right hand now than when he left the hospital. His fingers are very sensitive to heat, or the pricking of a pencil or pen, even more so than his left hand, but the sense of touch is almost gone and there is a feeling of numbness at all times."

This case seems to be one of true jacksonian epilepsy with the attacks beginning in the right hand and fingers. At the time of the operation, it was felt that perhaps too small an area of cortex was injected. As the procedure was in a way experimental, I felt a hesitancy in injecting more freely, until we learned more concerning the permanence of a paralysis that might be produced. The subsequent history suggests that the so-called epileptic zone must have been more extensive than was at first suspected, as the patient still has irritative phenomena. It is interesting to note, however, that in none of these attacks have the right hand and fingers been involved. Of particular interest is the fact that the motor paralysis produced by the injection was only temporary. A feature of particular interest, from a neurologic point of view, is the sensory disturbance that still exists to a certain extent, although the injection was entirely in the precentral convolution.

COMMENT

In reporting these cases, no claim is made that injection of the brain cortex with alcohol will cure jacksonian epilepsy. It is felt, however, that the method suggested is worthy of being tried, particularly in view of the fact that it does not seem to produce a permanent paralysis. If the full extent of the so-called epileptic zone, in cases of unquestionable jacksonian epilepsy, can be determined, and this area thoroughly injected with alcohol, it would appear that it might be possible to control, to a certain extent, the irritative phenomena. The advantages over the method of excision are that the pia-arachnoid is not sufficiently damaged to promote adhesions between the dura and brain, that it is safer and simpler, and apparently does not cause a permanent paralysis.

78 Forrest Avenue.

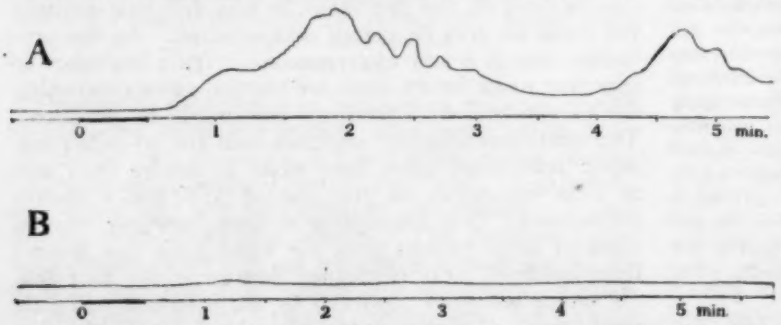
Almshouses.—A report issued by the Department of Commerce, Washington, D. C., 1922, on seven states, Indiana, Maryland, New Hampshire, North Dakota, South Carolina, Utah and Washington, shows the number of people cared for in almshouses. Indiana heads the list with 3,129 in ninety-one institutions; Maryland is second with 1,370 in eighteen institutions; New Hampshire cares for 869 in ten institutions; Washington for 769 in twenty-six; South Carolina for 450 in twenty-three; Utah for 188 in seven, and North Dakota for 120 in seven institutions.

THE ANAPHYLACTIC HEPATIC INTERNAL SECRETION

FURTHER EVIDENCE OF ITS RÔLE IN CANINE ANAPHYLAXIS *

W. H. MANWARING, M.D.
Professor of Bacteriology and Experimental Pathology, Stanford University School of Medicine
JAMES R. ENRIGHT, A.B.
DOROTHY F. PORTER, A.B.
AND
H. BING MOY
STANFORD UNIVERSITY, CALIF.

In a previous paper [1] it was shown that a sharp contraction of the urinary bladder takes place during the first two minutes of typical canine anaphylactic shock. It was further shown that this characteristic bladder contraction does not take place in dehepatized anaphylactic dogs. The conclusion was drawn that the typical anaphylactic bladder contraction is due to chemical products (hepatic anaphylatoxins), explosively formed or liberated by the anaphylactic liver, products having a histamin-like effect on the urinary bladder. The present paper presents additional evidence of the existence of this anaphylactic hepatic internal secretion, based on a study of the effects of dehepatization on the anaphylactic reactions of the gastro-intestinal tract.



Effects of dehepatization on anaphylactic rectal reactions: *A*, intact dog; *B*, dehepatized dog; heavy base line, intravenous injection 1 c.c. horse serum per kilogram weight.

GASTRO-INTESTINAL REACTIONS IN INTACT ANAPHYLACTIC DOGS

To demonstrate gastro-intestinal reactions, segments of the digestive tract were inflated with Ringer's solutions at a pressure of about 10 mm. of mercury. The pressure changes within these segments during anaphylactic shock were recorded by means of a mercury manometer.

No pressure changes were demonstrable by this method in the canine esophagus. Sharp increases in pressure were recorded in all other parts of the digestive tract. The increase usually began from forty-five to seventy-five seconds after the beginning of the intravenous foreign protein injection. The pressure usually reached a maximum by the end of two and a half minutes. Recovery usually began about the fifth minute. The pressure was usually restored to normal in from fifteen to thirty minutes.

The reactions varied in intensity in different parts of the gastro-intestinal tract. In the stomach, the pressure increase was usually about 10 mm. of mercury; in the small intestine,[2] an increase of about 25 mm. was usually recorded; in the colon and rectum, about 50 mm. A typical rectal tracing is reproduced at *A*.

Gastro-intestinal contractions apparently identical with these are produced by the intravenous injection of histamin.

EFFECTS OF DEHEPATIZATION

The dehepatization tests were made by the technic described in our previous paper.[1] In dehepatized anaphylactic dogs, no appreciable contractions of any part of the gastro-intestinal tract were demonstrable during the first five minutes following intravenous foreign protein injection. A typical rectal tracing in a dehepatized anaphylactic dog is shown at *B*.

In contrast with this finding, dehepatization does not abolish the typical gastro-intestinal contractions to histamin.

CONCLUSIONS

The gastro-intestinal contractions in intact anaphylactic dogs are not secondary to local passive congestion. Ligation of the portal vein, producing a passive splanchnic congestion greater than that in severest anaphylactic shock, does not increase the gastro-intestinal tone within the time limits of our test (five minutes).

The gastro-intestinal contractions in intact anaphylactic dogs are also not secondary to decreased arterial blood pressure. Rapid exsanguination, lowering the arterial blood pressure to that of the severest anaphylactic shock, does not cause recognizable gastro-intestinal contractions within the first five minutes.

The typical anaphylactic gastro-intestinal contractions in intact anaphylactic dogs are, therefore, presumably due to chemical products (hepatic anaphylatoxins), explosively formed or liberated by the anaphylactic liver, products having a histamin-like effect on the gastro-intestinal tract.

No conclusion can as yet be drawn as to the probable nature of these hepatic anaphylatoxins. One cannot help wondering, however, whether we are not here dealing with an exaggerated amount of a normal hepatic internal secretion, an hepatic hormone whose main function is to cause rapid evacuation of the gastro-intestinal tract on the absorption of toxic substances from the intestine. This conception is our present working hypothesis.

SUMMARY

Marked increases in gastro-intestinal tone take place during the first two minutes of typical canine anaphylactic shock. These tonal reactions do not take place in dehepatized anaphylactic dogs. We believe that the gastro-intestinal contractions in intact anaphylactic dogs, like the urinary bladder contractions previously reported, are due to chemical products (hepatic anaphylatoxins), explosively formed or liberated by the anaphylactic liver, products having a histamin-like effect on the grastro-intestinal tract. It is possible that the hepatic anaphylatoxin is but an exaggerated amount of a normal hepatic internal secretion, an hepatic hormone whose main function is to cause rapid evacuation of the gastro-intestinal tract on the absorption of toxic products from the intestine.

* Read before the Section on Pathology and Physiology at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

1. Manwaring, W. H.; Hosepian, V. M.; Porter, Dorothy F., and Enright, J. R.: Hepatic Anaphylatoxins: The Hepatic Internal Secretion in Anaphylaxis, J. A. M. A. **82**: 1506 (May 10) 1924.

2. Manwaring, W. H.; Beattie, A. C., and McBride, R. W.: The Intestinal Lesion in Anaphylaxis, J. A. M. A. **80**: 1437 (May 19) 1923.

ABSTRACT OF DISCUSSION

DR. J. P. SIMONDS, Chicago: It is stated in this paper that one of the most striking features of anaphylactic shock is the sudden and very marked fall in arterial blood pressure. Two other elements, however, should be mentioned. These are the very sharp fall in venous blood pressure in the superior vena cava, and a rise, very marked also, in the blood pressure of the portal vein when the cannula is in the splenic vein pointed toward the liver. If these various blood pressures are timed, the rise in portal pressure occurs at least simultaneously with, if not a little previously to, the fall of the venous pressure, and this a little previously to the fall in arterial pressure. If it is merely a matter of increased permeability of the capillaries and formation of intrasinusoidal plugs, it hardly seems possible that the capillaries should be so completely blocked as to give such a rise in portal pressure in so short a time; namely, a very few seconds. If we consider the rise in portal pressure from the standpoint of absolute increase, it is not great. But Porter showed, many years ago, that the relative change is more important than the absolute change in determining the significance of a rise or fall in blood pressure. The relative change in the portal pressure in the dog in anaphylactic shock is very great. We found in anaphylactic shock in the dog that when the blood pressure was at its lowest, injections of small doses of epinephrin produced no effect whatever. Injections of small doses of nicotin, however, gave very unusual results. Sometimes there would be no effect at all; at another time, even in the same animal, there would be an enormous rise in arterial blood pressure and the animal would go on to a very rapid recovery. These were apparently contradictory results. It was noticed that when nicotin produced such a rise in blood pressure it was invariably accompanied by a very marked dyspnea. It is known that a very large amount of blood (61 per cent. of the total quantity in the body, according to Weil) is impounded in the liver of the dog during anaphylactic shock. It seemed possible, therefore, that the violent respiratory efforts produced a combined force and suction pump action on this reservoir of blood in the liver, thus bringing more blood to the heart and causing the rise in arterial pressure. I should like to know whether Dr. Manwaring would have a different explanation, on the basis of his theory, for this remarkable occasional reaction to nicotin.

DR. V. H. MOON, Indianapolis: None of those who are interested in anaphylaxis can fail to be keenly interested in the results Dr. Manwaring describes under dehepatization as a means of study. I wonder whether the hypothesis has occurred to Dr. Manwaring that possibly a part of the mechanism of anaphylaxis depends on a function which the liver performs, by means of which the anaphylotoxin or histamin-like substance that plays a part in anaphylaxis is formed. It occurred to me that possibly in the dehepatized dog the formation of this histamin-like substance does not take place, and thence typical anaphylaxis does not occur. The absence of peristalsis in the bowel, and of contraction in the bladder musculature, in dehepatized dogs would seem to support such a hypothesis.

DR. W. H. MANWARING, Palo Alto, Calif.: I am sorry I am not in a position to answer these questions. We are just commencing the study of the chemical changes, and I hope that soon I shall be able to get some definite findings as to the chemical changes that take place under these conditions.

History of Lying-In Hospitals.—Evidence exists that in 1,437, St. Barthomew's, then a religious house, was granted certain privileges in consideration of the great charges incurred by it in receiving poor, feeble and infirm people, and lying-in women and their infants, and keeping them until their purification. But after the reformation and the dissolution of the monasteries and hospitals, all provision for women in labor came to an end, excepting the very small number of such cases admitted into the two royal hospitals of St. Bartholomew and St. Thomas.—Peachey: *Proc. Roy. Soc. Med.* **17**:73 (Aug.) 1924.

THE EFFECTS OF IRRIGATION WITH SURGICAL SOLUTION OF CHLORINATED SODA

IN ACUTE AND IN CHRONIC EMPYEMA *

FRANKLIN A. STEVENS, M.D.
NEW YORK

With the publication of Volume XI of the Medical Department of the United States Army in the World War,[1] the statistical results concerning the treatment of empyema with antiseptic solutions have been made available for an analysis of the effects of this form of therapy. The study of the irrigation of empyema cavities with antiseptics was begun at Camp Lee, Va., under the direction of Lieut. Col. E. K. Dunham, by a commission appointed by the Surgeon General of the Army. The work of this commission followed closely on the efforts of a previous commission delegated to investigate pneumonia at Fort Sam Houston, Texas. This pneumonia commission associated hemolytic streptococci with the fulminating types of pneumonia and pleuritis encountered in the cantonments.[2] The value of certain therapeutic measures, especially the delayed operation in cases of severe streptococcus pleuritis and the beneficial effects of high caloric diets during the acute stages of the infection, were soon established after work was commenced at Camp Lee, and the results of these investigations were published[3] in 1918. On account of the prolonged observation necessary in determining the results of antiseptic irrigation, no conclusions were drawn as to the efficacy of this form of therapy at that time. After the commission had ceased to function under the authority of the Surgeon General's office, its efforts were continued in the final collection of data for publication in the medical history of the war. The material collected leaves many problems unsolved; but, owing to the almost universal use of surgical solution of chlorinated soda (Dakin's solution) and the number of cases available for study, we can arrive at very definite conclusion as to the effect of Carrel-Dakin treatment following drainage by rib resection.

STERILIZATION OF EMPYEMA CAVITIES WITH SURGICAL SOLUTION OF CHLORINATED SODA

When neutral solution of sodium hypochlorite is employed for the irrigation of empyema cavities, the results are manifested in three ways: (1) The cavity becomes sterile more quickly than if treated by simple drainage without irrigation; (2) the wound is cleansed and the exudate is removed, and (3) the excess scar tissue over the lung surface is dissolved, allowing the lung to expand and obliterate the cavity.

When the solution is properly prepared and contains the proper percentage of available chlorin, these results are obtained almost solely through the action of the chlorin liberated. On the other hand, when the chlorin available is less than 0.4 or 0.5 per cent., the antiseptic and solvent effects are not sufficient to bring about the desired results. This was frequently demonstrated by bacteriologic studies of cavities during periods of irrigation with solutions containing less than this percentage

* From the department of medicine of the College of Physicians and Surgeons, Columbia University, and the Presbyterian Hospital.

1. The Medical Department of the United States Army in the World War **11**: 170-205, 1924.
2. Cole, Rufus; and MacCallum, W. G.: Pneumonia at a Base Hospital, J. A. M. A. **70**: 1146 (April 20) 1918.
3. The Empyema Commission: Cases of Empyema at Camp Lee, Va., J. A. M. A. **71**: 366 (Aug. 3), 443 (Aug. 10) 1918.

of chlorin. The removal of the cicatricial tissue takes place through a combination of the chlorin liberated with the protein of the tissues, so that they are rendered soluble; but an excess of chlorin or actual alkalinity of the solution carries this action to a point at which it becomes injurious. Then the skin is excoriated, the growth of new tissue is prevented, normal tissue is dissolved, and the surface of the lung may be denuded even to the point of hemorrhage. In many instances, pleuropulmonary fistulas were undoubtedly due to improperly prepared solutions. This has occurred especially during the treatment of streptococcal empyemas in which the surface of the lung is studded with small abscesses which offer ready communication between the bronchioles and the cavity when the cicatricial covering is removed.

Repeated attempts have been made to stabilize the solution of sodium hypochlorite so that it might be preserved without deterioration; but solutions of this kind have been found unfit for use, since they have been excessively alkaline. The only preparations that gave consistent results and did not hinder the healing of the wounds were fresh neutral solutions containing from 0.4 to 0.5 per cent. of available chlorin.

With solutions properly prepared and with careful irrigation of the cavities with Carrel tubes distributed throughout, so that the solution may come in contact with all parts of the wound, the statistical results show that sterilization of the cavities can be accomplished within a relatively short period. Unfortunately, we have been unable to obtain figures showing the effects of irrigation in pneumococcus empyema. The figures concerning the sterilization of streptococcus cavities are available from the series at Camp Lee, Va., where 102 cases of streptococcus pleuritis were followed over a period of four years after the onset of the infection.

For the study of sterilization, two groups of cases have been selected. Both groups followed streptococcus pneumonia, but the subsequent treatment of the cases in these two groups varied. The first group of thirty-four cases were chronic when Carrel-Dakin treatment was begun. They were treated primarily by the resection of a rib and simple drainage; but, after an average mean period of ninety days, Carrel tubes were placed in the wounds and irrigation was carried out at intervals of three hours until healing occurred. The average time that elapsed in these chronic cases between the time that irrigation was begun and hemolytic streptococci disappeared from the wounds was seventy-three days. This was approximately half the interval (144 days) which elapsed between the time at which antisepsis was begun and the final healing. The second group of twenty-eight cases were irrigated as soon as was practicable after rib resection. In certain instances the treatment was delayed on account of pleuropulmonary fistulas, so that the average period at which Carrel-Dakin treatment could be instituted was nine days following the operation. The average interval before these cavities were sterile was 42.1 days, slightly less than half the average number of days (98.9) elapsing between the operation and the final healing. It is evident from these figures that, aside from the chronicity of the cavity, the presence of hemolytic streptococci definitely deters healing and, regardless of the stage of empyema that Carrel-Dakin treatment is begun, the period required for healing after irrigation is instituted is approximately twice that required for the sterilization of the cavity. This is not only true when the cases are arranged in these groups according to their chronicity, but holds true within the groups of cases as well.

In comparing the groups of acute and chronic cases mentioned in the previous paragraph, we find that in the group of chronic cases the interval between the time when antisepsis was begun and the sterilization of the cavity, and that between the sterilization of the cavities and the healing of the wounds, are longer than similar intervals in the more acute group. The chronic cases required seventy-three days for sterilization and an average of seventy-one additional days before the wounds were healed. These periods are to be compared, respectively, with intervals of 42.1 and 56.8 days required for sterilization and subsequent healing in cases irrigated immediately after rib resection. This represents an average difference of twenty-one days between the periods required for the sterilization of acute and chronic cases and a difference of 14.2 days in the additional period before healing. When the intervals between the beginning of Carrel-Dakin treatment and the final closure of the wounds are reckoned, the advantage of immediate irrigation after resection in which irrigation was done is more apparent, since we must compare an average of 98.9 days in cases immediately after operation with one of 144 days in the more chronic groups. The difference, forty-five days, between these figures indicates the value of early and thorough antiseptics. Pleuropulmonary fistulas and hemorrhage have been the only contraindications to immediate antiseptic therapy.

Sterilization of these cavities was usually easily accomplished and, in those which required longer than the average period before cultures of the wounds were sterile, some condition was discovered which had resulted in constant reinfection of the sinus. In instances in which the solution of sodium hypochlorite contained less than 0.4 per cent. of chlorin, the bacterial counts occasionally increased from day to day. In other instances, sterile precautions were not carefully observed during the dressings. If perfect asepsis was not adhered to during dressings, sterilization of the cavities was impossible; but a certain percentage of the cases in which the treatment was technically perfect did not become sterile after the period of irrigation usually required. The failure of antisepsis in these cases was due to one of four things: (1) necrosis and infection of the resected rib; (2) a foreign body in the cavity (either a small sequestrum of bone, gauze or a drainage tube); (3) a pleuropulmonary fistula which caused constant reinfection of the sinus, or (4) sacculations and diverticula which could not be reached by the usual methods of irrigation. With these conditions remedied, sterilization was prompt.

EFFECT OF ANTISEPSIS ON THE INTERVAL REQUIRED FOR HEALING

The interval between the operation and the time when the thoracotomy wound is permanently closed, except for superficial epithelization, is probably the most accurate index of the value of irrigation with an antiseptic. In the series of cases studied, two factors have made a comparison between simple drainage and drainage with irrigation difficult. One has been inadequate irrigation, or irrigation with solutions of sodium hypochlorite prepared without proper controls as to alkalinity or the content of available chlorin; and the second, the type of case in which the solution was employed. These factors have necessitated the division

of the cases into two groups, one in which the postoperative care included irrigation begun immediately after the resection and continued at intervals of three hours or less, and the second comprising both the cases which healed under simple drainage and those which recevied inadequate irrigation. By comparing a group receiving adequate treatment with a second group which includes simple drainage, and those cases receiving inadequate treatment, we can arrive at figures which will slightly favor drainage without irrigation as the mode of treatment.

Of the 102 cases of streptococcus empyema observed at Camp Lee, twenty-six received adequate irrigation and seventy-six inadequate. The latter group included forty-two cases which healed without antisepsis and thirty-four refractory cases which were transferred to Carrel-Dakin treatment after an average period of ninety days of simple drainage. The average intervals that elapsed between the operation and perfect wound closure in these groups are, respectively, 107.9 and 154.4 days. The application of this method of analysis to a larger group of cases collected from seven cantonment hospitals gives a similar but not as striking a difference between the intervals for wound closure in similar groups. When 965 cases that were treated inadequately are compared with 148 adequately treated cases, with respect to the interval between the resection of a rib and final healing, we find a difference of only 4.2 days. The adequately treated group healed in an average of 86.6 days, while those inadequately treated required an average period of 90.8 days. Approximately 50.5 per cent. of these cases were due to pneumococcus. In view of the difficulty of sterilizing streptococcus infections of the pleura as compared with those of pneumococcus origin, the results in this series are probably modified by the admixture of streptococcus and pneumococcus infections.

EFFECTS OF ANTISEPSIS ON THE PERCENTAGE OF RECURRENCES

Recurrences in empyema have been found due to two factors. In the majority of the cases that require operations for the removal of purulent exudate after healing has once occurred, the accumulation of pus is found within the remnants of the old cavity. The recurrences among pneumococcus infections of the pleura are practically always of this character, but among streptococcus infections 40.5 per cent. of the recurrences are not in the original tract. Accumulations of exudate not in the original tract are found closely approximated to the old sinus. Serial roentgenographic studies made during healing, with the cavities filled with liquid suspensions of barium sulphate, indicate that these pockets are formed by the contraction of scar tissue with the sequestration of small areas of infected pleura. Irrigation tends to prevent recurrences of both types, since the cavities are sterile when they heal, and the solution of sodium hypochlorite gradually dissolves the cicatricial bands which tend to form sequestrums.

In a previously reported [4] series of 123 cases of streptococcus empyema, recurrences of infection requiring secondary drainage were found in 12 per cent. of sixty-seven cases healed under careful Carrel-Dakin technic, and in 25 per cent. of fifty-six cases healing without irrigation. These cases were followed for a period of eight months after wound closure. In a much larger series in which the cases of pneumococcal and streptococcal infection are represented in equal numbers, the percentage of recurrences is considerably lower. Among 713 cases in which simple drainage was the only postoperative treatment, eighty-two, or 7.86 per cent., of recurrences were reported. Among 489 cases in which irrigation was inadequately performed, there were fewer recurrences, forty-four in all, or 6.08 per cent. of the total; but the most satisfactory results were among 252 cases in which thorough irrigation was done from the time of rib resection until the wound healed. There were recurrences in only thirteen of the cases, or 5.16 per cent. of the entire number. This increasingly higher percentage, 5.16, 6.08 and 7.86, in the group of thoroughly irrigated cases, the inadequately treated group, and those which received no antisepsis, respectively, illustrate the advantage of antisepsis over simple drainage, and of thorough irrigation over inadequate treatment.

EFFECT OF ANTISEPSIS ON THE CONFORMATION AND CONTRACTION OF EMPYEMA CAVITIES

I have pointed out in one of the preceding paragraphs that, aside from sterilization, solutions of sodium hypochlorite have a valuable solvent action on cicatricial tissue. The effect of this action is gradually to free the lung from excess scar tissue, allowing it to expand and fill the cavity, and at the same time to prevent the contraction of cicatricial bands, which eventually sequestrate infected areas. These results cannot be subjected to comparative statistical analysis. In a group of 180 chronic cases that apparently were in need of thoracoplastic procedure, only 31 per cent. required operations after the cavities were carefully irrigated over a period of three months. These cases were followed in many instances by series of roentgenograms while under treatment. The lung expanded gradually as the scar tissue was dissolved, and pockets and diverticula were opened up into the main cavity.

Estimations of the size of the cavities, determined by filling them with measured quantities of solution, showed a gradual reduction in the cubic contents of all of the sinus tracts, so that less radical procedures were required in the cases that eventually came to operation. Hedblom [5] has reported similar results in fifty-one chronic cases of three months' standing. In his series, in which the size of the cavities varied from 100 to 2,000 c.c., an average decrease of 92 per cent. in cubic content occurred within an average period of 40.7 days after active Carrel-Dakin treatment was begun.

CONCLUSIONS

1. Irrigation of empyema cavities with surgical solution of chlorinated soda sterilizes the cavity and promotes healing of the wound.
2. Early irrigation, immediately following the operation, is more effective in sterilizing these cavities than irrigation when the cavity has become chronic.
3. Healing is promoted in both acute and chronic cavities.
4. Solutions to be effective and not injurious must contain between 0.4 and 0.5 per cent. of available chlorin. They should be neutral to phenolphthalein.
5. Contraindications to irrigation are pleuropulmonary fistulas and hemorrhage from the pleura.
6. Continued irrigation of chronic cavities results in a marked decrease in the size of the cavities.
7. The percentage of recurrences and the percentage of thoracoplastic operations necessary are decreased by irrigation with surgical solution of chlorinated soda.

4. Stevens, F. A.: Recurrences After Operation for Empyema, J. A. M. A. 73: 812 (Sept. 13) 1919.

5. Hedblom, C. A.: The Treatment of Chronic Empyema, Ann. Surg. 72: 3 (Sept.) 1920.

AGRANULOCYTIC ANGINA*

BEATRICE R. LOVETT, M.D.
CHICAGO

Within the last year, there have been reported in Germany[1] about a dozen cases of a most interesting condition, grave ulcerative angina associated with extreme leukopenia. This syndrome has been called agranulocytosis, or agranulocytic angina, and as far as reported the symptoms are remarkably similar in all instances. Women of middle age are affected, and the disease is fatal after a fairly acute course. The onset is sudden, with fever and sore throat. The characteristic lesions are rapidly spreading ulcers, invariably present on the tonsils and pharyngeal walls, often on the gums, larynx, tongue and about the genitalia. There is little or no enlargement of the regional lymph glands; in fact, there seems to be little reaction of any sort to the lesions, and no resistance to their rapid spread. Icterus, without obvious cause, occurs in a majority of the patients. A hemorrhagic diathesis is not usually part of the picture. It was reported in one instance, which, however, may belong to a different disease group.[2] The liver and spleen are of normal size or only slightly enlarged.

The blood count is the distinguishing feature of the disease. Hemoglobin and erythrocytes are within normal limits. The white cells, on the other hand, are reduced to a remarkably low figure, below 1,800 per cubic millimeter in the six cases reported by Leon, with from 68 to 100 per cent. cells of the lymphoid type. Those of the granular series are almost entirely absent. The bleeding and coagulation times and the platelet count, when taken, have been normal. Treatment of the condition has been entirely futile. Arsenic, diphtheria antitoxin and blood transfusion are without effect on the local lesions or on the blood picture, and all those affected have died within a few days.

Necropsy findings are reported by Leon. The liver, spleen and lymph glands were unchanged, and no constitutional anomaly, such as status lymphaticus, was found. The bone marrow showed characteristic changes: absence of leukocytes and myelocytes, very few myeloblasts, with the other elements, erythrocytes and megakaryocytes, present in normal numbers.

Recently a patient was brought to this hospital with an illness that proved to be, beyond any doubt, identical with the German cases summarized above.

REPORT OF CASE

History.—A. K., a married woman, aged 47, entered the hospital, April 15, 1924, with the diagnosis of diphtheria. Her illness began, April 11, with a chill, followed by general pains and sore throat. She was given diphtheria antitoxin, April 14. Of interest in her past history was an attack similar to the present one, diagnosed diphtheria, two years before, and occasional attacks of pain resembling biliary colic without jaundice. She had three children. On entrance, she was apparently suffering from a severe infection, and quite weak. Examinations of the heart and abdomen were negative. The lungs showed some dulness over the left base without other change. There was a yellowish, necrotic membrane on each tonsil, larger on the right side, very suggestive of diphtheria. The cervical glands were not enlarged; the temperature was 102.2 F. She was given 20,000 units of diphtheria antitoxin. Cultures were negative for diphtheria bacilli throughout. The fusiform bacilli and spirilla of Vincent's angina were not found at any time.

April 17, the skin and sclerae became distinctly icteric, and the patient was weaker. April 18, the jaundice had deepened. The throat lesions, which were now seen to be ulcers, were spreading in spite of vigorous local treatment; and a similar necrotic process had started in the gums of the lower front teeth—the only teeth present. The odor of the breath was very foul. The temperature rose to 104 F.; the patient was irrational much of the time, and took practically no nourishment.

Three days later, April 21, she had respiratory difficulty and a cough. The mouth and throat lesions continued to spread, the gums being by this time entirely yellow and necrotic and partly sloughed away. Similar lesions, ulcers as large as 1 cm. in diameter, and some of them quite deep, with yellow necrotic centers, appeared about the vagina and rectum. The liver was now 1 cm. below the costal margin, and the icterus more marked. The following day the patient became much worse; râles were heard over the lung bases, and the temperature went up to 108 F. The patient died about noon.

Blood Counts

Date	Hemoglobin, per Cent.	Erythrocytes	Total Leukocytes	Lymphocytes		Plasma Cells		Monocytes		Neutrophils		Basophils		Shadows	
				Per Cent.	Absolute Number	Per Cent.	Absolute Number	Per Cent.	Absolute Number	Per Cent.	Absolute Number	Per Cent.	Absolute Number	Per Cent.	Absolute Number
4/17	85	4,200,000	900	..	....	..	....	..	..	..	..	..	..	....	..
4/18	..	.....	850	75	638	14	119	6	51	3	25	..	..	2	17
4/19	..	.....	1,200	..	....	..	....	..	..	..	..	..	..	....	..
4/20	..	....	1,350	58	783	37	499.5	1	13.5	1	13.5	..	..	3	40.5
4/21	80	3,980,000	900	61	549	29	261	3	27	3	27	1	9	3	27
4/22	..	4,200,000	1,200	66	792	21	252	2	24	5	60	..	..	6	72

The Wassermann test was negative. The blood pressure was 120 systolic and 60 diastolic. Daily examination of the urine showed the presence of albumin, hyaline and granular casts, and bile, but no leucin or tyrosin. The hemoglobin was 85 per cent.; the erythrocyte count about 4,000,000. The leukocytes, on an average of four counts, reached only 900, April 17, and never rose above 1,350 before the patient's death. The bulk of the white cells were lymphocytes, but it is interesting to note the high percentage of plasma cells, a maximum of 37 per cent. The polymorphonuclear leukocytes were always below 5 per cent. From the absolute counts, it appears that the reduction affects the lymphocytes as well as the granular cells, although to a much less extent. The erythrocytes were unchanged, and blood platelets were present in at least normal numbers.

The nuclei of the neutrophils were completely segmented in only a few of the cells. The chromatin did not stain deeply, and its structure was indistinct. The cytoplasm showed a beginning destruction, and contained in most of them unstained globules resembling fat droplets. A promyelocyte was found, April 18. Few of the plasma cells were of the lymphocytic type. The majority were large, with broad cytoplasm, staining a deep blue, mottled with red. The chromatin of the nuclei was in most of them arranged in oval particles, simulating the prophase of a mitosis. Some of them resembled monocytes, few were of the lymphoblastic type with nucleoli. Vacuoles were sometimes present in the cytoplasm and occasionally all over the nucleus. One such cell contained two vacuoles, each about 4 microns in diam-

* From the Durand Hospital of the John McCormick Institute for Infectious Diseases.
* The bacteriology was done by Dr. Ruth Tunnicliff, and the blood counts were controlled by Dr. Kamil Schulhof.

1. Leon, Alice: Ueber gangraeneszierende Prozesse mit Defekt des Granulocytensystems, Deutsch. Arch. f. klin. Med. **143**: 118 (Aug.) 1923. Schultz, Werner: Deutsch. med. Wchnschr. **48**, Nov. 3, 1922. Friedmann, Ulrich: Ueber Angina agranulocytotica, Med. Klin. **19**: 1357 (Oct. 14) 1923. Bantz, R.: Leukaemieartige Krankheitsbilder mit dem Blutbefund einer extremen Leukopenie, ibid. **19**: 1667 (Dec. 23) 1923.
2. Bantz, R. (Footnote 1, fourth reference).

eter, and a smaller one about 2 microns. Figures 153, 157, 158, 179, and the cytoplasm of 174 in Pappenheim-Ferrata's book[3] may give an approximate idea.

Necropsy.—The local lesions were seen to be deep, black, almost gangrenous ulcers, about 1 cm. in diameter, many of them confluent, and without any definite demarcation from the normal tissue. They were present over the base of the tongue, tonsils, peritonsillar tissues, and a few about the orifice of the larynx. The tonsils had largely sloughed away and also the gums of the lower front teeth. The surface of the cervix uteri around the external opening was black and partly necrotic; the vaginal mucosa was gray-yellow, with scattered superficial ulcers. There was a ring of ulcers on the vulva surrounding the vaginal opening, and a few around the anus. Microscopic sections of the throat lesions showed a deeply extending necrosis, not definitely separated from normal tissue, and without any marked cellular accumulation. There were no polymorphonuclear cells seen, no increase in plasma cells, or other sign of reaction. An extraordinary number of bacteria, all gram-negative but of different forms and sizes, infiltrated the necrotic tissue, even to the deepest parts. Long and short bacilli were seen, and lying most deeply, many large filaments, straight or slightly wavy. The impression was that of a rapid and destructive growth of bacteria, without opposition or defense. The ulcers about the vagina were similar but less extensive. The regional lymph glands were not enlarged, but microscopically small hemorrhages were found.

The liver, spleen and kidneys were unchanged, except for slight enlargement and parenchymatous degeneration, and some passive congestion of the liver. Three stones were found in the gallbladder and cystic duct, but none in the hepatic or common ducts. The lower lobe of the left lung was adherent to the pleura and showed some recent hemorrhage. There was a cystic enlargement of the thyroid gland.

The left femur was opened, revealing yellow marrow in the lower half and red in the upper. The ribs and upper end of the sternum contained red marrow, normal in gross appearance. In the microscopic examination of the red marrow from the femur, the almost complete absence of cells of the granular series was conspicuous. Nucleated erythrocytes and megakaryocytes were present as usual, and there were no bacteria or necrotic places.

COMMENT

Much interest was naturally felt in the etiology of this condition, and attempts were made to isolate the organisms present in the lesions. While no conclusions can be drawn from this single instance, the results are of interest and are suggestive for the investigation of future cases of the same sort.

Blood cultures were negative, and throat cultures during life showed only the bacilli and cocci ordinarily present. By anaerobic methods, *B. pyocyaneus* was cultivated from the lesions in the throat and vagina after death. This organism and also a pneumococcus was obtained in cultures from the spleen. As mentioned before, gram-negative, irregularly staining bacilli and filaments were seen in sections from the throat and spleen. *B. pyocyaneus* gives rise to filaments when grown anaerobically. Filtrates from cultures of the bacilli, fresh and after growth for one month, did not destroy normal human leukocytes in vitro.

Two guinea-pigs were injected intraperitoneally with 5 c.c. of broth to produce an exudate, and twenty-four hours later, one was injected with 0.1 c.c. of a broth culture of *B. pyocyaneus*. Three hours later, many normal polymorphonuclear leukocytes were found in the peritoneal cavity. Five hours after the injection of bacilli, some of the leukocytes appeared degenerated, and a few bacilli were present inside and outside the cells. The animal died the next day, the peritoneal fluid showing some degenerated leukocytes containing bacilli and many large mononuclear cells engulfing the polymorphonuclears.

The other guinea-pig received 0.5 c.c. of broth culture. Two hours later, the leukocytes in the peritoneal cavity were taking up the bacilli, the polymorphonuclear cells appearing much vacuolated, staining poorly with Wright's stain, and having clear spaces around the edges. Three hours later, the leukocytes produced by the broth injection were degenerated, and fresh leukocytes, probably as the result of the injection of bacilli, were present. Many bacilli were inside and outside these cells. The number of leukocytes in the circulating blood fell in four hours from 10,000 to 5,200, the percentage of polymorphonuclears decreasing one half, and these cells appearing degenerated. The animal died within twenty-four hours.

Two other guinea-pigs were now injected with smaller doses, and blood counts made. The one receiving 0.006 c.c. of broth culture showed no change; in the one receiving 0.03 c.c., a decrease of 3,000 leukocytes was observed two days after injection, the neutrophils falling from 48 per cent. (normal) to 12 per cent. The percentage rose to 18 the following day, and was normal five days after the injection. No degeneration of the cells was observed.

Both guinea-pigs now received 0.06 c.c. of broth culture. The number of leukocytes in both fell 3,000 the day after injection. The one previously injected with the smaller dose showed no change in the differential count, but the second animal showed a decrease in the neutrophils from 48 to 29 per cent., twenty-four hours afterward.

These experiments indicate that cultures of *B. pyocyaneus,* injected into the peritoneal cavity of guinea-pigs containing an exudate, have a toxic effect on the leukocytes, producing vacuoles and irregular staining. Similar results were obtained by Gheorghiewsky[4] in 1899. Small numbers of *B. pyocyaneus* may decrease slightly the number of leukocytes in the circulating blood of guinea-pigs, and diminish the percentage of polymorphonuclear cells. Filtrates of fresh and old cultures have no toxic effect on human leukocytes in vitro.

The question arises as to the primary factor in the etiology of agranulocytic angina. Is it a local infection with a specific organism which produces severe gangrenous lesions, and has a toxic effect on the granulocytes, or is it primarily an injury to these cells at the site of their formation, with a consequent lack of general resistance, so that any infection goes on to necrosis and finally death? That angina may occur secondary to, or at least following, similar blood counts is indicated by a case in one of the Chicago hospitals. In a patient operated on for carcinoma of the prostate, and treated afterward with roentgen rays and radium, the white count fell to 200 cells per cubic millimeter, with only 4 per cent. of polymorphonuclear leukocytes. He developed angina of a type similar to that of our patient before death.

The presence of *B. pyocyaneus* in the local lesions and in the spleen, with the fact that it causes a reduction of leukocytes in guinea-pigs, seems to indicate that it might bear a causal relationship to the disease. This organism was found once in the heart, liver and spleen, and once in the blood stream by Ulrich Friedmann.

3. Pappenheim-Ferrata: Ueber die verschiedenen lymphoiden Zellformen des normalen u. pathologischen Blutes.

4. Gheorghiewsky: Du mechanism de l'immunité vis-a-vis du bacille pyocyanique, Ann. de l'Inst. Pasteur **13**: 298, 1899.

Whatever the noxious agent may be, it seems to injure the bone marrow, or that part of it concerned in the formation of leukocytes, so that these cells are greatly reduced, and at the same time, the bodily resistance is lowered. Such low proportions of polymorphonuclear leukocytes are not, however, necessarily fatal. Kohn [5] has described a case of "monocytic reaction" in the blood, in which the count was 4,000 white cells, with 2.6 per cent. of granular cells, and 74 per cent. of monocytes. It returned to normal in a few days.

The occurrence so far in middle aged women alone is unexplained, as is the mechanism by which the icterus is produced. Evidently neither hemolytic nor obstructive, it may have to do with some injury to the reticulo-endothelial cells of the liver. Another curious feature of the illness is the reduction in the total lymphocytes, and their possible conversion into plasma cells. The finding of megakaryocytes in the bone marrow as usual, together with normal numbers of platelets in the blood, furnishes an argument for the origin of platelets from the megakaryocytes rather than from the leukocytes.

Although no definite etiology has been found, and the pathogenesis is as yet unexplained, the great similarity of symptoms, the blood picture and the course in all reported cases indicate that agranulocytic angina is a true clinical entity.

SUMMARY

About a dozen cases of a disease termed agranulocytic angina have been reported in Germany, and recently a similar case was observed here. The main features are ulcerative angina, usually accompanied by icterus, a great reduction in the white blood cells, affecting chiefly the polymorphonuclear leukocytes, and a fatal outcome after an acute course. There is no anemia. The granular cells are absent not only from the blood, but also from the bone marrow. The other marrow elements are normally present. The only other significant feature in the pathology is the absence of cellular reaction to the local lesions.

B. pyocyaneus was obtained in cultures from the lesions and from the spleen in our case. It was found once in the blood and once in the internal organs in the German cases. This organism has the power of reducing the leukocytes in the blood of guinea-pigs, and causes degeneration of leukocytes in the peritoneal cavity.

The disease appears to be due to an injury to the leukopoietic element of the bone marrow, with lowered bodily resistance, and necroses in various parts. The etiology and pathogenesis are not explained, but from the similarity of all cases so far reported, one must regard it is a clinical entity.

5. Kohn, Fritz: Wien. Arch. f. inn. Med. **7**: 123 (Oct. 20) 1923.

Cancer Houses.—Although the term "cancer-house" may be a misnomer, there can be no doubt that, for an indeterminate period, in certain houses, house blocks or districts, cancer is prone to recur, affecting people of different family and stock who successively inhabit such houses, house blocks or districts. The Cancer Committee appointed by the Birmingham branch of the British Medical Association found that second and third cases of cancer occur in particular houses more frequently than can be accounted for by coincidence, and that particular groups of houses may be similarly affected. They suggested that this association implies contaminated soil. Old houses appeared to furnish a higher proportion of cancer cases than new ones.—L. W. Sambon: *Proc. Roy. Soc. Med.* **60**:89 (Sept.) 1924.

POSTERIOR ARTHROTOMY OF THE HIP JOINT

REPORT OF FIVE CASES *

FRANK R. OBER, M.D.
BOSTON

It is my purpose in this paper to discuss further an anatomic approach [1] to the posterior aspect of the hip joint that I have used since 1916, and in this discussion

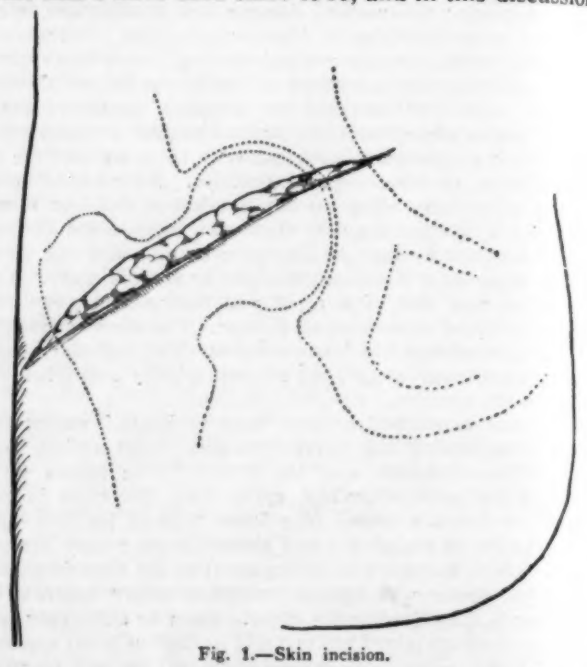


Fig. 1.—Skin incision.

five case histories will be presented illustrating results obtained. There have been more cases, but they are not given here because it would savor too much of

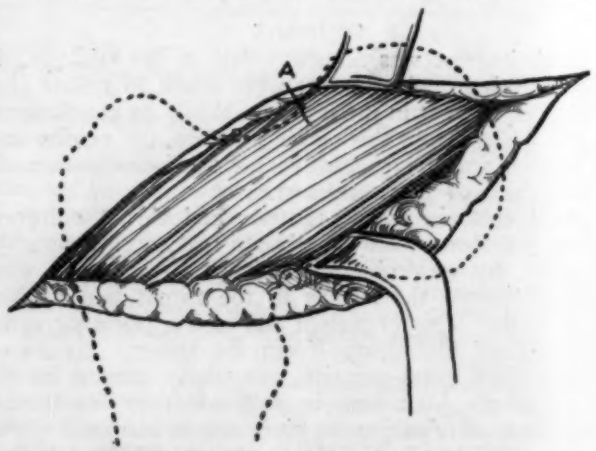


Fig. 2.—Exposed gluteus maximus muscle: *A*, gluteus maximus.

repetition, as the conditions and results do not vary enough to warrant its being done.

An attempt will be made to show how this approach differs from those incisions of Langenbeck [2] and

* From the Orthopedic Department of the Boston Children's Hospital.
* Read before the Section on Orthopedic Surgery at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.
* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Jones and Lovett: Orthopedic Surgery, 1923, p. 288.
2. Langenbeck, cited by Binnie, J. F.: Operative Surgery, 1913, p. 939.

Kocher [3] which are in common use. They are anatomic, and approach the hip joint by muscle splitting.

METHODS OF LANGENBECK AND OF KOCHER

The incision advocated by Langenbeck is the highest. It begins about 1½ inches below the tip of the greater trochanter, extending along its midline upward about 4 inches in the direction of the posterior superior iliac spine. The gluteus maximus and its tendon are exposed and the muscle fibers are separated. The joint capsule is approached by dividing the groove between the pyriformis and gluteus medius.

The incision of Kocher is curved, and extends from the lateral aspect of the base of the great trochanter to its tip; it then curves upward in the same general direction as Langenbeck's incision. On retracting the split gluteus maximus, one opens up the space between the pyriformis and the gluteus medius. The insertions of the gluteus medius and minimus are dissected off; also the iliofemoral ligament. The capsule is split along the inferior border of the pyriformis.

The foregoing incisions give excellent approaches to the posterior aspect of the joint, but there is considerable hemorrhage to be controlled, which is a distinct disadvantage on account of the depth of the wound. The communication to the joint is not so direct, and there is some gridiron effect if muscle splitting is carried down to the joint, making drainage in septic cases more difficult.

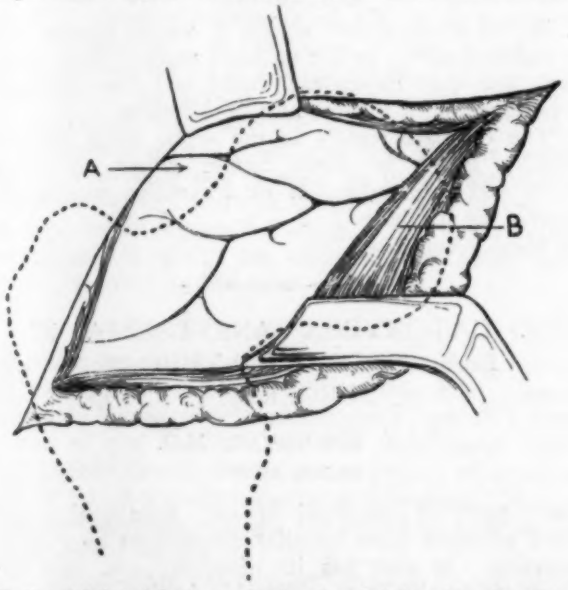


Fig. 3.—Subgluteal fat layer: *A*, deep layer of fat with veins; *B*, gluteus maximus.

AUTHOR'S METHOD

The incision described below is a more direct muscle splitting approach to the joint than those above. There is a minimum of hemorrhage (quite often no hemostats are used), it affords rapid and efficient drainage, and, if one desires, one may start active mobilization early.

The incision is in line with the neck of the femur directly over the center. It begins at the posterolateral aspect of the femur and extends obliquely upward and backward toward the sacrococcygeal articulation (Fig. 1). The fibers of the gluteus maximus are in line with the skin wound (Fig. 2). These fibers are separated, and on retraction there appears a layer of fat (Fig. 3), which contains anastomosing vessels. In the medial angle of this fat one should locate the great sciatic nerve. The fatty layer is now separated by blunt dissection. This exposes the tendon of the obturator internus, the quadratus femoris, the two gemelli, inferior and superior, and the pyriformis muscles (Fig. 4).

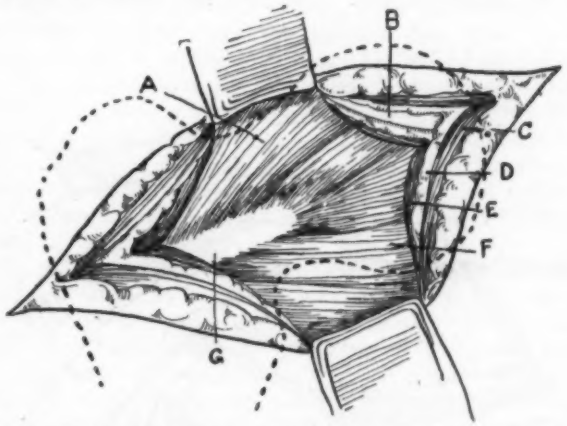


Fig. 4.—Short rotators: *A*, gemellus superior; *B*, sciatic nerve; *C*, gluteus maximus; *D*, deep fat; *E*, quadratus femoris; *F*, gemellus inferior; *G*, obturator internus.

The short rotators are divided in the direction of the neck with a blunt dissector, and their attachments to the neck of the femur may be freed if more room is required. The capsule is split throughout its entire length (Fig. 5) so that the ascetabulum and neck are freely exposed. If necessary, the capsule also may be cut vertically.

In cases of septic arthritis I have found that two (Fig. 6) cigaret drains sutured to the outside of the capsule are efficient. Being posterior and dependent, they drag the capsule into a funnel shape, giving rapid drainage. If one desires, the capsule may be sutured to the gluteal fascia, in which case the drains are not used. If it is a clean case, three or four sutures will close the capsule, and the wound will fall together so well that suturing the skin will be sufficient to close it completely.

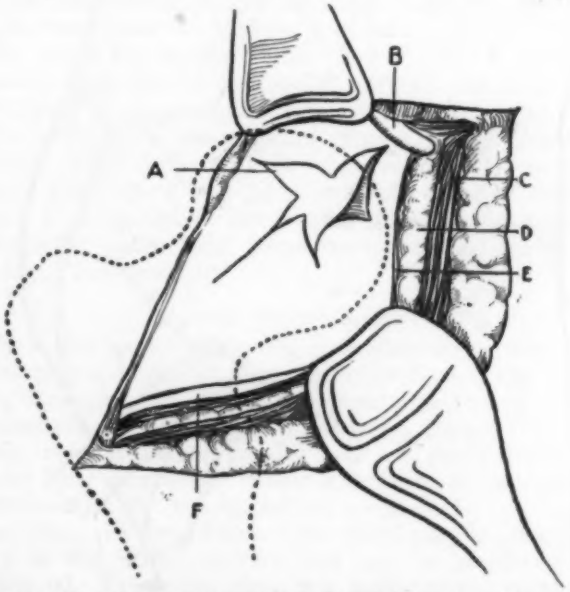


Fig. 5.—Capsule opened, exposing neck and joint: *A*, split capsule; *B*, sciatic nerve; *C*, gluteus maximus; *D*, deep fat; *E*, quadratus femoris; *F*, obturator tendon.

3. Kocher, T.: Text Book of Operative Surgery, 1903, pp. 360-361.

REPORT OF CASES

The operation, as described, was performed in the following cases:

CASE 3.—F. S., a girl, aged 11 years and 9 months, admitted to the ward, March 14, 1923, seven weeks before had been pushed against an iron bed and hurt her hip, and a week later she began to limp. The pain and lameness became steadily worse. On examination the right hip showed a moderate swelling about the anterior aspect of the joint. There was marked spasm and pain on attempt at motion. Her temperature was 101 F., and white blood count 11,000. On the following morning she was seen in consultation by the members of staff, who advised delay. The next day the temperature went to 103, with a blood count of 15,600, the pain had increased, and the patient was very restless. In the afternoon of the same day, the joint was opened and one-third ounce of thin, straw colored pus containing fibrin was obtained from the joint. This pus contained *Staphylococcus aureus* and streptococcus. The joint was drained.

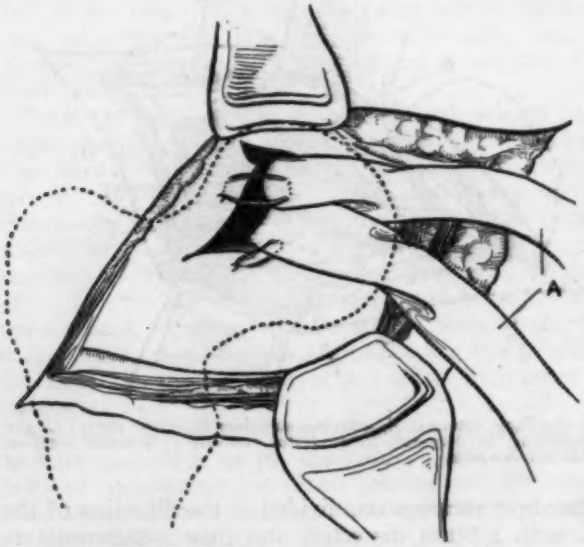


Fig. 6.—Drains sutured to capsule: *A*, cigaret drains.

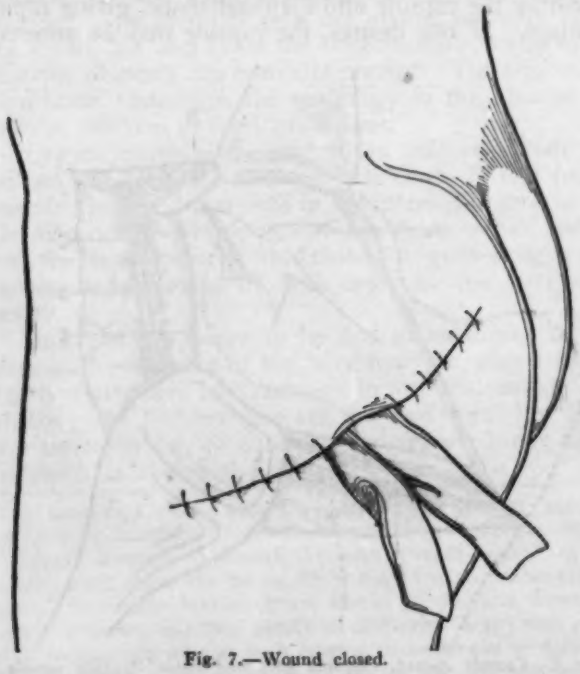


Fig. 7.—Wound closed.

As soon as the patient was out of the ether she was started on active motion of the affected joint every two hours. March 27, she began to walk. A month after operation there was no limp, and the wound was completely healed. One year later the patient walked without a limp. There were 115 degrees of motion in flexion, and all the other motions of the joint were free.

COMMENT

The question may be asked as to the advisability of using another anatomic approach to the hip when those of two such master surgeons have proved satisfactory over a considerable period of time. However, it has been my past experience that septic hips drained by those methods, and the amount of hemorrhage encountered, frequently required the use of many artery forceps, which were always in the way, making it difficult to get a clear field.

INDICATIONS FOR THE OPERATION

1. Septic arthritis of the hip joint.
2. Osteomyelitis of the neck of the femur.
3. Excision of the head of the femur.
4. Osteotomy of the neck of the femur.
5. Removal of foreign bodies.

CONCLUSIONS

1. In the cases shown above, it would appear that the results obtained by the author's method were satisfactory and that dependent, rapid and free drainage was obtained with a minimum of bleeding.
2. The ultimate results in the septic cases did not materially differ in their course either by using traction and immobilization or by active motion, as advocated by Willems.

234 Marlborough Street.

PURE GAS-OXYGEN ANESTHESIA FOR EAR, NOSE AND THROAT SURGERY *

E. I. McKESSON, M.D.
TOLEDO, OHIO

Gas-oxygen in the field of ear, nose and throat surgery presents some peculiar advantages over other anesthetics. It also has its disadvantages. Of the latter, perhaps the most noticeable is the difficulty in abolishing the pharyngeal reflex unless morphin also is employed. A second objection is the requirement of an apparatus particularly adapted to this work. And third, in the hand of a slow operator, the expense for the gases is much greater than for ether.

The following incidents, illustrative of the points I wish to make, I believe show advantages that quite outweigh any disadvantages I have mentioned. In some instances, these situations have been responsible for changes in technic, while in others they have proved the procedure used to have been well conceived.

While anesthetizing a 12 year old girl in the recumbent posture for tonsillectomy, as the adenoid was cut loose with an open adenotome, she inhaled the mass, completely obstructing the trachea. Subsequent efforts at respiration were ineffective. The adenoid could not be felt in the throat, and respiratory efforts soon ceased. A tracheotomy might be useless, so also artificial respiration by the usual methods. There was no pulse on the carotids, but, by this time, I had applied the face

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Fifth Annual Session of the American Medical Association, Chicago, June, 1924.

inhaler, intending to force oxygen into the lungs. The first attempt failed—the air passage seemed completely blocked, and the oxygen escaped around the mask and face. Then, with greater pressure to hold the mask against the face air-tight, the oxygen was again applied, this time filling the lungs. In a moment, the pulse was again perceptible, and, after oxygen had been applied two or three times in this manner, the inhaler being lifted between inflations, the cough reflex was restored, and, with a vigorous cough, the adenoid was expelled. No complications followed. I am confident that the girl would have died under any ordinary method of etherization; first, because suitable equipment for oxygen insufflation would not have been ready for use, and, secondly, because the cough reflex could not have been restored soon enough after ether.

Not a few patients have died by inhaling vomitus containing chunks of meat or food, while fluid alone has been responsible for drowning in many cases of obstruction of the bowels.

In the recumbent posture there is also danger of blood and mucous aspiration, which occasionally froths and, under deep narcosis, may asphyxiate quite promptly. Oxygen in these cases, also, is the best treatment. Prophylaxis, of course, is of first importance. The suction apparatus, if it is not a source of cross contamination of the patient, is a valuable aid. I believe that we should look carefully into the design of any suction apparatus, and make sure that aspirated infectious material may not possibly be forced through an ether container or otherwise infect the next patient. It has occurred in a case in which a diphtheria carrier contaminated a pump and infected two other tonsil patients operated on the same morning.

SITTING POSTURE

Another means of prophylaxis is the sitting posture and gas-oxygen anesthesia. Since this case, I rarely anesthetize for nasal or oral surgery except in a chair. In most of our hospitals, we now have dental chairs, which are the best chairs for this and many other operations for which a chair is useful in a hospital. Most of our better surgeons now use the sitting posture in nose and throat operations.

In administering gas-oxygen for nasal or oral operations, it is necessary to deliver the gases under some pressure so as to prevent the inhalation of air through that air passage which is exposed for operation. This feature of gas-oxygen technic is often of great assistance in the operation itself. The following case illustrates this point.

A well nourished girl, aged 22, was greatly embarrassed in respiration by a tumor mass arising at the adenoid area and extending down the throat, obstructing the glottis by a bulb or pear shaped mass about 3½ inches long and 1 inch in diameter at the lower end. The mass quite filled the space, and threatened the patient's life immediately. The lower end could not be seen.

She was anesthetized with gas-oxygen under pressure with the nasal inhaler, the mouth being propped open, but tightly covered to effect pressure. Respirations were then easy. When anesthesia was secured, the mouth was uncovered, and the mass was grasped and teased out into the mouth; a snare was applied, and the mass was removed without difficulty.

While this tumor might have been removed without an anesthetic, had we known its shape and nature of attachment, the case was so urgent that we needed to be prepared for any eventuality in the course of operation.

QUINSY

In all peritonsillar abscesses, the same method of anesthetization in the sitting posture is also employed. In these cases, it is very easy, indeed, to assist respiration by passing the gases through the nose and postnasal space behind the swelling, and forcing the gases and exhalations through the fauces, thus preventing any aspiration of pus after the incision has been made. Many surgeons whose experience is limited to the use of ether think that no anesthetic can be used with safety, in this condition, and these patients are caused to suffer intensely while the incisions are made to locate the pus cavity. When drainage is secured, a few breaths of oxygen restore consciousness and cooperation within a few seconds, and the patient is most grateful for the relief of pain.

In another little 3 year old child, the tonsils and adenoids were so large as very seriously to obstruct the respiration even when she was awake. In this case, when anesthesia was scarcely secured, it was necessary to grasp one tonsil and rotate it so as to make breathing space, and to remove the adenoid first, after which the remainder of the operation was performed as usual with no further impairment of respiration.

If the surgeon will operate with the same technic and position employed in successful local anesthesia, his work under gas-oxygen will be most satisfactory and gratifying. The anesthesia should be only deep enough to permit him to work; he should avoid touching or swabbing the pharynx, and he should avoid holding the tongue in such a position as to obstruct respiration. These elements are more important under gas-oxygen than under ether. They are, at first, a slight handicap to the surgeon, until he has acquired the knack of doing the operation easily. Large, fluffy sponges to be used in the throat are, therefore, unsuitable; they should be small and well formed to go into the tonsil fauces, if used at all.

The facility of administering the gases under pressure in obscure cases of brawny indurations of the neck often saves the patient's life. Since it is not always possible to locate the pus pocket until several incisions have been made, general narcosis is necessary. By the usual methods of etherization, many of these patients quickly succumb to asphyxia from respiratory obstruction. These cases may be successfully handled, however, if respirations are assisted by administering gas-oxygen under small pressures not exceeding 10 or 15 mm. of mercury.

NASAL OPERATIONS

It is not generally known that gas-oxygen may be advantageously employed in most operations in the nose. The drainage of an obstructed suppurating frontal sinus or antrum and the removal of polypus, ethmoid operations, etc., are quite painful and not easily handled under local anesthesia. Ether anesthesia, as ordinarily administered in the recumbent position, is far from ideal also. In these cases, a postnasal plug is unnecessary in the sitting posture, but may be employed if preferred. Here, the gases are administered through the oral inhaler, and the exhalations pass out of the nose, if patulous, blowing any blood or pus from the nose, thus preventing its aspiration. From the standpoint of anesthesia, the operations in these cases are much easier than tonsil operations, since most of the patients have more or less nasal obstruction, and therefore seldom tend to inhale air through the nose; and, further, since there is no reflex to interfere with the

operation. From the surgeon's standpoint it is more satisfactory to proceed deliberately with these operations.

OPERATIONS OF THE EAR

For the removal of foreign bodies from the external auditory canal, the incision of furuncles, paracentesis and mastoid operations, the use of gas-oxygen does not differ from its use with the face inhaler in other general operations. Its advantages are those of a quick, pleasant, nonirritating anesthetic almost free from after-effects. Especially is this appreciated in the severely toxic conditions often found in acute mastoiditis with or without pulmonary, nephritic or other complications.

COAGULATION TIME

In cases in which there is considerable delay in coagulation before operation, gas-oxygen is indicated, as it is well known that it shortens this period. In a recent case of anemia, the coagulation time was twenty-seven minutes even after calcium treatment, hemoplastic serum and blood transfusion before the operation. During the operation, a sample of blood was taken which coagulated in seven minutes. No unusual bleeding occurred postoperatively. In many tonsil cases with slow coagulation, the time has in each instance been reduced to within normal limits. I do not mean to indicate that gas-oxygen will prevent all postoperative hemorrhages, since the conditions of the blood vessels and the method of operation have much to do with the occurrence of postoperative hemorrhage. But, other things being equal, there is a noticeable reduction of bleeding after gas-oxygen, as compared with ether or local anesthetic in these cases.

CONCLUSIONS

Gas-oxygen anesthesia may be advantageously employed in any operation in this field of surgery. Among some unusual advantages, the following may be mentioned:

1. It shortens the coagulation time of the blood.
2. Under pressure, it makes general narcosis safe for patients with obstructive complications, such as quinsy or tumors.
3. It discourages aspiration of pus, blood and infectious material, and with a suitable apparatus offers the best means of resuscitation in these complications.

I have had no pulmonary abscesses or pneumonitis following gas-oxygen in any position, and there have been no deaths as a result of the anesthetic or the operation. I believe that the sitting posture is preferable and safer for these operations.

ABSTRACT OF DISCUSSION

Dr. John H. Evans, Buffalo: Dr. McKesson favors the forward inclined sitting posture for tonsillectomies, while I have found the recumbent position with the use of suction and the head lowered so that the blood may gravitate away from the lungs very satisfactory. I have given more than 2,000 pure gas-oxygen anesthesias for tonsillectomies in this position without the sequel of lung abscess. There was, however, one case of postoperative pneumonia with recovery. Before attempting to administer pure gas-oxygen for tonsillectomy, the anesthetist should be thoroughly familiar with the behavior of this anesthetic. It differs from other anesthetics in this respect: The signs of too deep and too light anesthesia are somewhat similar and the anesthetist should be able to make a differential diagnosis. The surgeon, as well as the anesthetist, should understand the difficulty of maintaining a continous relaxed condition of the throat for 100 per cent. of cases, especially over a long period of time. The zone of muscular relaxation with gas-oxygen is a narrow one, and a slight variation in the oxygen percentage may cause the relaxation to be temporarily lost, either by too deep or too light anesthesia, for in deep anesthesia the throat muscles may be spastic as a result of the asphyxial element. The benefits for the handicapped patient, as Dr. McKesson has pointed out, are very great when this form of anesthetic can be given. In view of the not infrequent explosions that occur with ether or ethylene, it is comforting to realize that this possibility is obviated when pure gas-oxygen is used.

Dr. T. E. Carmody, Denver: We all know that the application of oxygen will induce coagulation much more rapidly, that having the patient breath through the side of the nose from which there has been bleeding will stop it frequently. I should like to ask Dr. McKesson one question. I have given gas-oxygen in cases of obstructed breathing, mastoid and other things, but recently I had four cases of anesthesia with gas-oxygen, one mastoid and three tonsil and adenoid cases, and two of these patients had typical epileptoid convulsions. I have been wondering since then what was the cause. It makes me think a little bit before giving gas-oxygen, especially if the parents happen to be present.

Dr. Oscar Wilkinson, Washington, D. C.: In a case of tumor in the pharyngeal space, I never would have thought of giving general anesthetic. Certainly, these cases can be handled by local anesthesia with less danger. Dr. Chevalier Jackson, who does this character of work day after day, does not give ether or any other general anesthetic in foreign body cases, and I think he is right. The best method to secure an adenoid would be to use a bronchoscope and pull it out. One should not try to pump it out or suck it out, but pull it out. With reference to peritonsillar abscess, it has long been an accepted theory that general anesthesia is not best in these cases. The excuse the doctor gives for the use of gas-oxygen anesthesia is the relief from pain. I have been using a method for relieving pain in these cases for a number of years without any harm whatever. I make a local application of 5 per cent. cocain, wait two or three minutes, and then inject a little solution of 1 per cent. procain just underneath the mucous membrane; then wait five minutes, and I can open a peritonsillar abscess and the patient does not know it. When that can be done we certainly do not need any general anesthetic in peritonsillar abscess cases. The same thing applies to pharyngeal abscess. In this condition, I think any form of general anesthesia is contraindicated. With reference to coagulability being due to oxygen: In these cases of prolonged coagulability time, the thing to do is to give internal medication to control that before we operate. One cannot keep the patient under oxygen afterward, and in cases of hemorrhage afterward, one cannot fall back on oxygen. The thing to do is to prepare the patient beforehand.

Dr. E. I. McKesson, Toledo, Ohio: In my first case there was no pulse or respiration. The patient was practically dead. There was no time to get a bronchoscope. It made no difference then where the adenoid was. My idea was to force oxygen past the adenoid into the lung, restoring the pulse and cough reflex, hoping that the patient might cough it out, which she did. In a case of an inspired tooth causing deep cyanosis and unconsciousness for half an hour before I arrived, I resuscitated the patient with oxygen. The chair was tilted with the head down, when the patient promptly coughed the tooth into the mouth. Gravity assisted the cough here. The patient should be vertical or possibly slightly leaning forward for tonsillectomy. Epileptiform convulsions, as well as phonation, especially in children, are common indications for more oxygen; that is, they mean that the patient is too deeply asleep. The younger the child, the more frequently is phonation observed. It is merely a point in technic.

Research Spirit.—While the resultant increase of the research would fully justify all our efforts to promote scientific research, there is another reason equally good, though often overlooked or unappreciated. It is the educational principle that all instruction is most effective when imbued with the research spirit, inculcating the scientific method.—C. M. Jackson: *Science* **60**:229 (Sept. 12) 1924.

Clinical Notes, Suggestions, and New Instruments

POLYNEURITIS FOLLOWING ADMINISTRATION OF SOLUTION OF POTASSIUM ARSENITE IN A CASE OF CHOREA

JUNIUS W. STEPHENSON, M.D., NEW YORK

A girl, aged 8 years, was admitted to the second division of the Neurological Institute, July 26, 1924, unable to walk and also unable to raise her wrists all the way. The duration of the illness was given as two months, and the mother stated that there had been slight improvement in the left arm. The child had had the usual diseases of childhood, but there was nothing of significance except the chorea antedating the condition for which she sought relief.

History.—About May 15, the patient had become fidgety, irritable and cross; nothing seemed to suit her, and she was always finding fault. The right side of the mouth twitched. The tongue also twitched and turned so that one could hardly understand what she said. Her physician diagnosed the case as chorea. He put her on a yellowish liquid fluid, beginning 2 drops a day and increasing by 1 drop a day until 20 drops a day were being taken. When the patient reached 15 drops, she became suddenly ill. She had pains around her heart, her eyes puffed up, she moaned a good deal, and she vomited when she took the medicine. Her legs began to grow weak. She had frequent urination. The acute symptoms subsided, but her legs continued to grow weak, and finally she was unable to move her feet. Late in June her arms began to show some weakness, which gradually grew worse. During the latter part of her treatment with drops she began to get brownish. This coloration also seemed to slowly grow deeper. Her feet were put in splints, but these were removed a week prior to admission. At this time the skin of the legs was thick and began to peel off. On admission to the hospital, the pigmentation was reducing and the power in the left arm was improving. There was no conjunctivitis and no vomiting except when she took the "drops," and no diarrhea except while the physician carried her on a foaming cathartic. A copy of the prescription for the drops presented by the mother read Liquor Potassii Arsenitis.

Physical Examination.—The child was unable to stand. There was a general emaciation, with distinct atrophic changes in the extensor muscles of both feet, and to a less degree in the extensors of the leg. The extensors of the wrist were atrophic, the right being more pronounced than the left. There was a brownish desquamation of the skin, most marked on the extensor surfaces of the legs and forearms. To a less degree this was observed around the neck collar. It had the appearance of dry scales. There was a complete bilateral drop foot and a decided weakness of the extensors of the wrists, this being more pronounced on the right side. There was feeble flexion of the toes and foot. Grasp of the fingers and flexion of the wrists, though weak, were decidedly less than was extension. The calf muscles were exquisitively tender, and, to a less degree, the arm muscles. Any movement caused pain, and for this reason the examination was difficult. None of the deep reflexes could be elicited, but the abdominal and epigastric reflexes were quite active. Plantar stimulation at times produced no result, and at other times a flexor response. It was difficult to obtain a satisfactory sensory status, but there was a suggestive stocking and glove hypesthesia in the feet, extending to a point just above the metacarpophalangeal articulation. There was no evidence of involvement of sphincteric control. Pupils and vision were normal. Dr. Foster Kennedy, director of the service, as well as other members of the staff, concurred in the diagnosis.

This case is thought worthy of report as Fowler's solution is probably prescribed more than any other drug in the treatment of chorea, and the consequences in this particular case should serve as a warning. In administering arsenic to children, any stomach upset, however trifling, especially if associated with the least suspicion of puffing of the eyelids, is a danger sign of great import and should be invariably followed by discontinuance of the medication and the institution of proper eliminative measures. The case is also of interest in that it corroborates the opinion that arsenic has a predilection for those nerves supplying the extensors of the extremities, thereby being of assistance in determining the toxic agent in obscure cases.

This case further corroborates the opinion that arsenic, in causing polyneuritis, produces its symptom complex more acutely and more profoundly than do the other usual intoxications; namely, alcohol and lead.

The child is showing slow but progressive improvement, the therapy instituted being strychnin nitrate, 1/60 grain (0.001 gm.), once a day, gentle massage and passive movements, and for the relief of pain, galvanic baths. The galvanic baths we have found to be of great value in the relief of pain and paresthesia in any form of neuritis.

20 West Fiftieth Street.

MILK INJECTIONS WITHOUT LOCAL REACTIONS

K. D. GRAVES, M.D., ROANOKE, VA.

Without going into the use of milk hypodermically as a foreign protein, I will merely say that it is one of the most widely used materials we have for this purpose, because of its availability.

Following the hypodermic use of milk, I have observed that almost invariably the arm of the patient becomes tender and red at the site of injection, often extending over a space 5 or more cm. in diameter, beginning in a few hours, and often lasting several days. Owing to the similarity of this reaction to that following the injection of lipovaccine used in the army at one time, I decided to try fat-free milk instead of whole milk. This has given splended results, the local reaction being practically nil. Milk is centrifugated, and care is taken to load the syringe with milk well below the cream line. It appears that the cream is undesirable, as it is absorbed slowly, and acts as a foreign body, instead of an absorbable solution.

THE PROPHYLAXIS OF ROENTGEN-RAY OVERDOSAGE

R. H. RULISON, M.D., NEW YORK

Miss M. B., aged 63, was referred for treatment of a number of senile keratoses of the face. The lesions were thick and did not respond readily to 10 per cent. salicylic acid plaster and the usual ointments. One lesion on the right cheek near the zygema suggested malignant degeneration, and on July 16, 1924, I decided to treat this area with 1⅓ units of roentgen ray filtered through 3 mm. of aluminum. The factors should have been spark gap, 8 inches; 5 milliamperes; time, three minutes, fifty-four seconds; distance, 10 inches. Omission of the filter resulted in the administration of an unfiltered dose of 8 × 5 × 3′ 54″ at a distance of 8 inches, amounting to 4⅓ skin units. This overdose was given through a 1 inch aperture in a lead screen.

The mistake was detected before the patient left the office, and she was asked to return the following day, at which time treatment with the Kromayer lamp of an area 2 inches in diameter was begun. The following exposures were made:

Date	Distance Inches	Time Minutes	Rheostat	Comment
July 17.....	4	1½	3d step	
July 18.....	4	3	3d step	
July 21.....	4	5	3d step	
July 23.....	4	6½	3d step	Slight erythema (2 inch circle)
July 25.....	4	5	3d step	
July 28.....	4	5	3d step	Mild erythema (1 inch circle)
July 30.....	4	5	3d step	

It will be noted that no roentgen-ray reaction appeared until the twelfth day and was then only slight. This erythema persisted for ten days. The patient experienced no discom-

fort, and only the faintest desquamation followed. Ninety days after roentgen-ray treatment, the skin appears perfectly normal.

Aside from passing reference or a mere statement that ultraviolet light is of assistance in preventing roentgen-ray burns, the only literature I have been able to find on this subject is a remarkable article by Sampson,[1] who reports the use of enormous doses of roentgen ray without skin damage in cases which had previously been submitted to severe treatments with the ultraviolet lamp. He uses the lamp before roentgen-ray exposures and also afterward, and says that it is possible to prevent roentgen-ray burns by after-treatment alone. However, he believes that it is necessary to produce severe actinic reactions with the ultraviolet lamp to accomplish these results. In the case reported here, the light treatment was mild and at no time was any reaction produced greater than a mild erythema.

COMMENT

Through the omission of a filter, a patient was given an unfiltered dose of roentgen ray sufficient (4⅛ skin units) to cause a severe burn.

Gradually increasing doses of ultraviolet light were begun the day after this overdose, a larger area being treated with the Kromayer lamp than had been exposed to the roentgen rays, to avoid confusion of the expected erythemas. Only a moderate erythema was caused by the light.

A mild roentgen-ray erythema appeared twelve days after exposure and disappeared after ten days.

Three months after treatment, the patient's skin appears entirely normal.

780 Madison Avenue.

THE USE OF DISCARDED ANTITOXIN SERUM SYRINGES FOR AEROBIC AND ANAEROBIC CULTURE CONTAINERS *

EMIL WEISS, M.D., CHICAGO

The usual antitoxin serum syringe, after it has been used, can be cleaned and filled with bouillon or other fluid culture medium. With the plunger retracted, the cylinder filled with the culture medium to the desired level and the needle in place, the whole is then autoclaved. After sterilization, the needle is removed and the opening closed with hot paraffin. When it is desired to inoculate this culture, the needle is sterilized by boiling, and while it is hot the paraffin plug is punctured and the needle fixed in place over the end of the syringe. A necessary amount of the medium is expressed from the syringe, and the material from which the culture is to be made is sucked up into the cylinder. This can be used for blood cultures; venipunctures can be made directly with the needle, or for obtaining inoculum from any kind of material, pus or feces. The needle is removed and the end is again closed with paraffin. The syringe, with its inoculated medium, can be transported to a laboratory or immediately incubated. The same syringe can be used repeatedly.

For anaerobic cultures, from 0.5 to 1 c.c. of liquid petrolatum is drawn up into the syringe after it has been almost filled with the fluid medium. Sterilization and other technic are the same as mentioned for aerobic cultures. There is an advantage in the use of this method over that of the usual test tube method for anaerobic cultures. After the sterile needle has been put in place over the perforated paraffin end, the syringe with its content is inverted so that the needle points downward; the oil changes position to the top next to the plunger, and by pressing on the plunger the required amount of culture can be expressed through the needle free of oil. This is an advantage over the removal of a specimen for examination by passing a pipet or other objects through the covering oil layer of the test tube culture.

706 South Lincoln Street.

1. Sampson, C. M.: Ultraviolet and X-Ray as Physiologic Complements in Therapeusis: A Newly Established Clinical Treatment, Am. J. Roentgenol. 9: 570 (Sept.) 1922.

* From the Department of Bacteriology, Pathology and Preventive Medicine, Loyola University School of Medicine.

MERCUROCHROME-220 SOLUBLE IN ROCKY MOUNTAIN SPOTTED FEVER

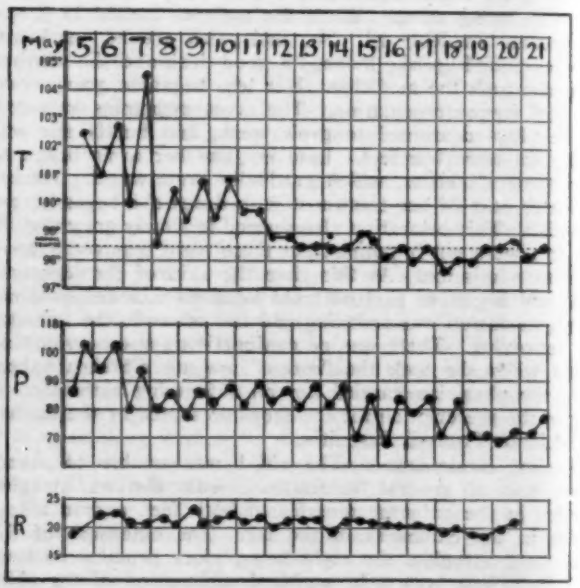
H. P. GREELEY, M.D., MADISON, WIS.

I am reporting this case of a disease which has never responded to any method of treatment, because the treatment given was apparently of value. Such a statement is made with the full appreciation of the fact that no one case report can mean much.

A woman, aged 28, married, was referred by Dr. Vogel of Elroy, who made the diagnosis. She entered the Madison General Hospital, May 5.

Sixteen days before, she had been bitten by a tick while in southeastern Montana. Five days before, on the train coming East, she had a chill followed by vomiting and fever ranging between 102 and 104 F. She had suffered constantly from a splitting headache and acute generalized pains in the muscles, accompanied by exquisite tenderness. The stools for some days before entrance were tarry. Soon after the onset, a generalized spotted rash appeared. She was quarantined for smallpox, but released when Dr. Vogel made a diagnosis of spotted fever.

The patient was short and stout, acutely ill, highly flushed, though the color was subcyanotic, and in severe pain and not able to move; her mental condition was alert. The skin was



Temperature, pulse and respiration.

covered throughout with a maculopapular rash, in size from a pinhead to a split pea, some spots being erythematous, but mostly hemorrhagic. The thighs and arms were more heavily affected than the body, and the face was relatively free. The same rash appeared in the mouth, with submucous hemorrhages in the soft palate. The tonsils had been removed, and there was no general throat infection. The lymph nodes were slightly enlarged in the neck, axillae and groins. The lungs were resonant, with normal breath sounds, but there were numerous coarse râles throughout. The heart showed no enlargement and no murmurs. The abdomen was not distended. There was no spasm, but a slight generalized tenderness. No masses were felt. There was an old appendectomy scar. The deep reflexes were normal. There was no Kernig's sign. A nearly healed spot or tick bite presented itself at the crest of the ilium on the right. The white blood count was 12,400. The red cells numbered 4,500,000. There were no malarial organisms. Examination of the urine was negative.

The patient was given 20 c.c. of a 1 per cent. solution of mercurochrome-220 soluble intravenously. Within an hour there was a severe chill, and following it the temperature rose to 104.8 F. Within six hours the muscular pains and soreness began to leave, and after twelve hours were entirely gone except in the neck and head. There were intestinal cramps (not severe), some diarrhea and salivation following the

injection. The temperature fell to normal the next morning, but rose each night for two more days—then fell to normal and stayed there. The whole febrile period was nine days; clinically, the disease was arrested by the mercurochrome with the exception of the headache and painful neck, which continued for five days.

Is it likely that in the helter skelter use of intravenous medication tick fever may be more responsive because of its pathology than some other conditions? Our experience may lead those in the West, especially where the fever is so fatal, to give mercurochrome a further trial.

TRAUMATIC IRIDODIALYSIS WITH COMPLETE REATTACHMENT OF THE IRIS

ABRAHAM SHEDLOV, M.D., GULLY, MINN.

Cases of iridodialysis with complete reattachment of the iris are of such rarity that a report of such a case is of interest.

E. J., a man, aged 24, while operating a power saw, Sept. 3, 1924, was struck in the right eye by a flying knot. Loss of vision was temporarily complete. I saw him within two hours after the accident.

There was an abrasion over the bridge of the nose, where the knot had evidently struck first. Examination of the eyeball showed an extensive iridodialysis in the lower periphery, of from 4 to 5 mm. in extent. The pupil was egg shaped. There was no hyphemia. The conjunctiva was unbroken, although the injection of the blood vessels was quite marked. At the first examination, vision was hazy; the patient was able to count fingers, but was unable to read beyond the largest type on the test card. Pain was severe.

Under the influence of atropin, the pain subsided and vision improved, within twenty-four hours, to normal. The aperture between the iris and the ciliary body gradually closed, and was completely reattached within one week. After the reattachment, I discontinued the atropin. On examination one week later, the eyeball was perfectly normal, vision was normal, and no evidence of the injury remained.

Few cases have been reported, and a limited review of the literature reveals very few cures reported. Some authorities go so far as to say that reunion of the detached iris to the ciliary body is impossible. De Schweinitz[1] says: "In a few instances reattachment of the ruptured fibers has taken place under the favorable influence of atropin. Ordinarily the lesion is permanent." Swanzy[2] says: "Restoration to the normal state in these cases rarely takes place. I have observed one case in which the iridodialysis, a very minute one, was healed."

In the case I am reporting, I believe that the favorable result was due to the fact that the eye was placed under the influence of atropin shortly after the accident.

REMOVAL OF FILARIA LOA FROM CONJUNCTIVA

G. H. BEERS, M.D., AUBURN, N. Y.

A woman, aged 45, a Presbyterian missionary on a furlough from a station in Cameroons, West Africa, stated that at times during the past year she had felt the sensation of a foreign body and a slight pinching in the left eye. She had seen an "eye worm" on several occasions, but it had disappeared before she was able to get a surgeon.

May 27, 1924, the patient called me on the telephone, saying that the "worm" was in sight. Hurrying to her, I could easily see the filaria lying under the conjunctiva of the left eye, horizontally about 3 mm. above the limbus. A loop of the worm was immediately grasped with fixation forceps, and the cocain solution instilled afterward. Then a snip through the conjunctiva, and the filaria was extracted intact. It measured 38 mm. and looked like an animated piece of silkworm catgut.

The patient states that she has felt movements of other filariae about her body; viz., in the right index finger and in the right breast.

1. De Schweinitz, G. L.: Diseases of the Eye, Philadelphia, W. B. Saunders Company.
2. Swanzy, Henry: Diseases of the Eye, Philadelphia, P. Blakiston's Son & Co.

Special Articles

PNEUMONIC PLAGUE

The severe outbreak of pneumonic plague now causing concern to health authorities in Los Angeles, as well as to those throughout the country, is the first outbreak of this condition to appear in the United States since a minor epidemic which occurred in Oakland, Calif., during August and September, 1919.[1] The bubonic form appeared first in the United States in 1900, and at various times sporadic cases have been reported in California, New Orleans and elsewhere in the United States. During 1923, plague was present in bubonic, septicemic or pneumonic form in all parts of Africa and Asia.[2] No cases were recorded for Europe, but many appeared in South American countries, including 870 cases in Peru, with 408 deaths. However, the various types of plague must be distinguished definitely for comprehension of the conditions that developed in Los Angeles. The bubonic and septicemic types of plague are marked primarily by the occurrence of the plague bacillus—*B. pestis*—in the glands, the blood and other tissues and organs of the body. This type of plague is spread primarily through the agency of the flea and the rat. On the other hand, pneumonic plague is more likely to spread from man to man, since the organism appears in enormous numbers in the sputum. Investigators in the North Manchurian Plague Prevention Service[3] point out that a pneumonic outbreak caused directly by rats never has been observed in the United States, and that even sporadic cases of pneumonic plague arising from them are rare.

In the minor epidemic that occurred in Oakland in August, 1919, the primary case was that of a man named Di Bortoli, who became ill, August 15, and died, August 20. A man who lived in the same house was taken sick, August 25, and died, August 28. The wife of the latter was taken ill, August 29, and discharged from the hospital as recovered, September 6. In quick succession, three other persons who had been in contact with the second case became ill and died and seven persons who had been in contact with these three also became ill and died. Of these thirteen patients, twelve died and one recovered. The first three or four of this series were thought to be suffering from influenza complicated by pneumonia. In the series, evidence of man-to-man transmission through direct contact with cases of the disease was clearly worked out by the officers of the California State Department of Health. Indeed, the most recent reports issued through the Health Committee of the League of Nations indicate that this is the common mode of transmission. Moreover, the suggestion is made that it is extremely doubtful whether the plague bacillus alone gives rise to pneumonic plague epidemics, and that probably there is, in symbiosis, another organism of an influenza type, which is nonpathogenic for rats.

1. Kellogg, W. H.: An Epidemic of Pneumonic Plague, Am. J. Pub. Health **10**: 599 (July) 1920.
2. White, F. N.: Prevalence of Epidemic Diseases in the Far East, Report to the Health Committee of the League of Nations, Geneva, 1923. Epidemiologic Intelligence No. 8, Health Organization of the League of Nations, Geneva, August, 1924.
3. Teh, W. Lieu: North Manchurian Plague Prevention Service Reports, 1923-1924, Tientsin Press, Ltd., Tientsin, 1924, p. 32, Hare, T.; Imia, M.; Awoki, T., and Sakamoto, T.: An Investigation of Pneumonic Plague, Japan M. World **3**: 153 (July 15) 1923; **3**: 181 (Aug. 15) 1923.

The greatest recent epidemics of pneumonic plague that have occurred have been the outbreaks in 1910 and 1911 in Manchuria, in which there were 60,000 deaths; and the outbreaks in Shansi in 1917 and 1918, with 16,000 deaths. The mechanism of infection in these epidemics seemed to resemble greatly the spread of influenza as it occurred in 1918 and 1919. A recent outbreak, which seems to resemble somewhat the Los Angeles conditions, occurred in January, 1924, in the lands lying between the Tigris and the Euphrates rivers, for a distance of 100 miles west and northwest of Bagdad.[4] A young man, a member of one of the nomadic tribes in that district, became ill and died, Dec. 25, 1923. His mother, who attended him, died shortly after, and within a few days another—a younger —son died. January 6, a third son and, January 8, the father died. Within a few days, five other members of the family, who had been in contact with the first case, died of this disease. The remaining four members left at once for Bagdad, where two died, January 18 and 26. Shortly after, other members of the camp became infected; so that a total of forty cases, with thirty-nine deaths, occurred from January 4 to January 30. Here is an indication of the terrific danger inherent in pneumonic plague. Antiplague serums and vaccines have been of little or no avail, and the case mortality rate has been aproximately 100 per cent.

The symptoms in the Bagdad epidemic, as indicated by Dr. T. Barrett Heggs, included:

1. High fever, severe headache, and cough with bright blood-stained sputum—pneumonic (the majority).
2. Axillary or cervical buboes, in addition to fever, headache, and cough with blood-stained sputum—bubonic and pneumonic.
3. Intense headache, fever, pain in chest, and dyspnea. No blood-spitting—pneumonic.
4. Intense headache and high fever only—septicemic.
5. A few cases were bubonic only (generally groin-bubonic). There is, of course, a heavy septicemia in the pneumonic form.

Dr. Heggs was convinced that the rat and flea transmission had nothing to do with the spread of the condition in the small epidemic just described. On the other hand, he considered certain customs and climatic factors of great importance. The wet and cold weather kept every one confined to the tents and to intimate contact with the sick, and aided droplet infection. Moreover, it has been customary to permit dead bodies to rest in various places while carrying them to holy cities for burial. During these periods, the women meet for lamentation over the corpse. This resulted in a greater incidence of the disease among the women of the tribe than among the men. Finally, the group is accustomed to eat from a common bowl in the center of the table, and spitting on the ground is the common practice.

It has been the belief also of Teague and Barber that the rapid spread of pneumonic plague in Manchuria was due to the temperature and humidity, which do not favor evaporation, and which permit the droplets of sputum to persist longer and, therefore, plague bacilli to remain alive longer.

THE PREVENTION OF PLAGUE

In the epidemic that appeared in Harbin, China,[5] in 1921, those physicians who were compelled to attend cases as well as all coming in contact with the patients protected themselves against the disease by wearing a special costume, consisting of a mask, overalls, a hood, high boots and rubber gloves. After the face mask was tied in place, the hood was put on, and goggles were worn outside the hood. The hood was shaped like a bag made of ordinary white cloth, with two holes for the eyes. Inside, a mask covering the nose and mouth was worn for additional protection. On coming away from contact with the sick, these garments were removed and exposed to the sunlight in the open air. In the evening, they were disinfected with formaldehyd; the boots were sprayed with antiseptic solutions, an antiseptic gargle was provided, and the hands were washed in antiseptic solutions. This is an indication of the respect for the danger of this disease held by those who are in constant contact with patients. Quarantine, isolation, and proper methods of disinfection are the chief reliance in checking pneumonic plague.

With regard to treatment, authorities in Harbin state that nothing was of avail. In the 1921 epidemic, there were 3,125 deaths among a population of 300,000 persons. In the epidemic that occurred in Harbin in 1910, there were 9,000 deaths in a population of 80,000. However, the severity of the condition is such that in both epidemics practically every one affected by the disease died. It is significant that the authorities report: "The largest number in the hospital on any one day was never above fifty cases, the patients dying so soon after admission."

4. Heggs, T. B.: Pneumonic Plague in Iraq, Tr. Roy. Soc. Trop. Med. & Hyg. 18: 45 (May 15) 1924.
5. Chun, J. W. H.: Pneumonic Plague in Harbin, China M. J. 37: 7 (Jan.) 1923.

GLANDULAR THERAPY

PHARMACOLOGY OF EPINEPHRIN*

JOSEPH T. WEARN, M.D.
BOSTON

When preparations of the suprarenal gland containing epinephrin are injected into man or animals, definite and constant physiologic reactions result. These reactions are, for the most part, similar to those induced by stimulation of the sympathetic division of the autonomic nervous system. In various conditions, moreover, in which individual organs or structures function pathologically, epinephrin may restore the normal physiologic function. (Constriction of an abnormally dilated blood vessel is a simple example.) All these changes and effects have been shown by careful investigation to be due to the epinephrin content of the suprarenal gland preparations, and, although numerous claims have been made that certain preparations give beneficial results on account of substances other than epinephrin, the evidence thus far presented that these preparations have definite and dependable pharmacologic reactions is not satisfactory. This discussion will, therefore, be limited to epinephrin. (For properties and commercial preparations of epinephrin see New and Nonofficial Remedies.)

Epinephrin is a weak base obtained from the medulla of the suprarenal gland or prepared synthetically. Both the base and its salts oxidize readily and are rapidly destroyed by strong acids or weak alkalis. When the drug is administered by mouth, therefore, it is quickly destroyed, either by the gastric or by the intestinal

* This is the seventh of a series of articles prepared under the auspices of the Council on Pharmacy and Chemistry. When completed, the series will be published in pamphlet form.

secretions, and its systemic effects are consequently not obtained. It is quite possible that epinephrin exerts a local action in the stomach before its destruction is completed; but this action itself—vasoconstriction—would make absorption of the drug even more unlikely.

There may be some absorption of epinephrin from the mucous membranes, but the quantity absorbed is seldom sufficient to produce the systemic actions that follow injection of the drug. Indeed, it is by injection only—subcutaneous, intramuscular or intravenous—that the real effects of the drug are seen. Moreover, even after injection, the effects are transient, lasting only a few minutes after intravenous injection, and rarely more than an hour following a subcutaneous dose.

When epinephrin is applied locally to mucous membranes or is injected hypodermically, it constricts blood vessels—an action which slows the absorption of the drug itself; but after absorption into the circulation the characteristic effects appear. The blood itself shows some changes, the most important of which is an increase in the sugar content, an effect which has suggested the use of the drug in certain instances in which the blood sugar content has fallen too low following excessive insulin therapy.

On the heart, epinephrin, injected subcutaneously or intramuscularly, has a definite stimulating action, increasing the rate by its action on the myoneural junctions of the accelerator nerve, and increasing the force of each beat by direct action on the muscle. If the drug be given intravenously, however, there may be, for a short time, a decrease in heart rate mainly because of stimulation of the vagus by the rise in intracranial pressure which accompanies the increase in arterial blood pressure.

In addition to its effect on the heart, epinephrin is a powerful vasoconstrictor, exerting its action on the arterioles chiefly, and, as shown by recent investigations, on the capillaries as well. The blanching of urticarial wheals following subcutaneous injections of epinephrin is an example of the constrictor effect of this drug on the capillaries. This marked vasoconstriction causes a rise in arterial blood pressure. Certain groups of vessels, however, are not constricted, among these being the intracranial and pulmonary vessels. It follows, therefore, that epinephrin is of no value in arresting hemorrhage from the lungs or the brain. The action on the coronary arteries has been disputed, but there is probably some constriction of these vessels in man.

These effects on the heart and blood vessels have led to the use of epinephrin as a heart stimulant, and a brief reference to its indications seems not amiss. It is safe to state that in any condition in which capillary permeability is increased, with a resulting leakage of plasma and therefore a decrease in blood volume, as in traumatic shock, epinephrin is not effective, since it is obvious that a transient stimulation of the heart and constriction of the capillaries will not restore the loss in blood volume. On the other hand, in conditions in which there exist a weak failing heart action and lowered blood pressure but no increase in capillary permeability, epinephrin is an excellent cardiovascular stimulant. An example of such a condition is the collapse that sometimes follows excessive anesthesia.

Another specific action of epinephrin is its power to cause relaxation of the muscles of the bronchioles when they are in spasm. Its clinical use in asthma and similar conditions is based on this effect.

Recent investigations have also shown that epinephrin has a definite effect on heat production and on respiration. Following its injection, there is a temporary increase in the metabolic rate, and at the same time an increase in the minute volume of air breathed.

On the gastro-intestinal tract, the effect is not so constant; but the stomach and intestines may be relaxed and peristalsis may be temporarily inhibited following injection of the drug.

There are various other signs and symptoms that may occur in man following the injection of epinephrin, and as a rule they vary in intensity as the individual varies in susceptibility to the drug. Palpitation, precordial pain, muscular tremor, increased sweating, flushing of the skin, general excitement and apprehension not infrequently follow its use, and it is well to remember that, in a person who is "hypersensitive" to the drug, these manifestations may be so severe and unpleasant that the desirability of its use may be questioned. It has also been repeatedly shown that the variations in susceptibility of different individuals to epinephrin do not constitute a satisfactory test for various clinical conditions, and hypersusceptibility to the drug is certainly not pathognomonic of any one disease or condition.

The use of epinephrin either during or immediately after chloroform anesthesia is distinctly contraindicated, because of the frequency of ventricular fibrillation and death following the combination of these two drugs.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

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INSULIN (See New and Nonofficial Remedies, 1924, p. 149).

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SATURDAY, NOVEMBER 8, 1924

PNEUMONIC PLAGUE

The first adequate description of a pneumonic plague epidemic appears to be that by Radcliffe, who described a typical outbreak occurring in Vetlianka, a village in southern Russia on the right bank of the Volga, in the winter of 1878-1879. As mentioned in the special article elsewhere in this issue, much more serious and extensive epidemics of the pneumonic type of plague have occurred in recent years: in Manchuria in 1910-1911, with 60,000 deaths; in middle China, in 1917-1918, with 15,000 deaths; and a second outbreak in Manchuria in 1920-1921, with 9,000 deaths.

As the whole world knows, the bubonic, or more common type of plague may be communicated to man through the bite of fleas infesting plague stricken rats. Other rodents besides the rat, however, may serve as reservoirs of infection: the tarbagan in Manchuria; certain spermophiles in southern Russia, and the gerbil in South Africa. In this country, as is well known, the California ground squirrel has been infected over a considerable area, and about seventeen cases of the disease in man have been traced to infection from this rodent. The incidence of this type of plague is dependent on climate, humidity, and the character and housing conditions of the inhabitants. In India, where, from 1896 to 1917, there occurred 9,841,396 deaths from plague, the highest mortality was in the month of March, the lowest in July. A high seasonal prevalence is apparently due to a high humidity, which is favorable to the life of the flea.

There is general agreement that the pneumonic plague arises as a secondary manifestation of the bubonic type of the disease. In the 1920-1921 Manchurian epidemic, observers on the ground noted the gradual evolution of the plague from the bubonic through the septicemic into the pneumonic form. This change was attributed principally to the promiscuous spitting and the huddling together of coolies day and night in unventilated inns. There is nevertheless much that is obscure in the relation of the pneumonic to the bubonic form of plague infection, and the conditions that bring about the development and rapid spread of pneumonic plague are far from being understood. McCoy has pointed out that pneumonic plague in man rarely occurs from rat infection, and he considers it a possibly significant fact that in plague squirrels there is a very definite tendency to pulmonary localization, a condition that never occurs in plague rats.

The present outbreak of pneumonic plague in Los Angeles is the second outbreak of this type of the disease in the United States, the first being in Oakland in September, 1919, as is described in the special article. In all, since the first recognition of the bubonic plague in San Francisco in 1900, and including both bubonic and pneumonic forms, there have been less than 500 cases in the United States in the last twenty-four years. Besides the Pacific Coast states, the disease has appeared for brief periods in Louisiana, Texas and Florida.

It seems probable that the chief means by which the pneumonic disease is spread is through droplet infection, the germs being carried in the small particles of moisture that are discharged by the patient in coughing, talking, spitting and sneezing. Wu Lien Teh, chief medical officer of the Manchurian Plague Prevention Service, who has had extended experience in both the Manchurian outbreaks, does not consider rooms in which patients have died of pneumonic plague as particularly dangerous. Thus far the chief reliance in individual protection has been the face mask designed to protect against droplet inhalation. The problem of successful vaccination against pneumonic plague still awaits solution. The use of a curative serum has nowhere been markedly successful.

The plague situation on the Pacific Coast is serious, but does not call for hysterical alarm. Sanitarians have long known that the danger of such an outbreak as that at Los Angeles was never altogether absent. For a number of years, plague infected rats and ground squirrels have been occasionally encountered in California, and the human disease is known to have occurred in recent years in parts of Mexico, notably Vera Cruz. The fullest publicity is always desirable in such an emergency. In 1900, the governor of California undertook to establish by proclamation the fact that the plague did not exist in California, but he was not markedly successful. As late as 1920, a writer in one of the Los Angeles papers thus expressed himself: "There is no more danger of bubonic plague becoming epidemic in a climate like that of California, where people are cleanly, than there is of seeing cactus sprouting on cement sidewalks." The intelligent human being, when he knows all the facts, will usually prefer to face them soberly, rather than to deny their existence and shut his eyes to a possible danger. Full publicity is the first duty of local authorities, both to their own citizens and to the country. Only with full knowledge can proper preventive measures be applied.

TETRA-ETHYL LEAD—ANOTHER INDUSTRIAL HAZARD

It has often been said that the intelligence of a race is measured by its industry. The stone age, the bronze age, the iron age, the machinery age and now the gasoline age represent milestones of human progress. In his retrospect of prehistoric industry, Edgar L. Collis [1] states that "the primary *raison d'être* of industry is safety and health"; but in this motorized age, with speed versus safety, one doubts whether all industry is really the means human intelligence employs to insure the existence of the race. It would seem that, on occasion, health may be jeopardized to fulfil the urge for pleasure.

The unfortunate accident in the tetra-ethyl plant at Bayway, N. J., is the result of attempts to work in one field of science under conditions fraught with danger. According to newspaper reports, five men in this plant died following exposure to tetra-ethyl lead, while forty-four others were severely poisoned. Previously there had been four other deaths from the same cause; two at the General Motors plant at Dayton, Ohio, and two in the Du Pont plant. The poisonous substance, as its name indicates, is a compound of lead with ethyl radicals, having the formula $Pb(C_2H_5)_4$. It was developed by the research staff of the General Motors Company. When added to gasoline in small amounts, it prevents knocking in the motor, as when laboring on slight grades or when the fuel is of an inferior type.

From time immemorial, lead has been known for its poisonous properties, and today lead intoxication is still the most prevalent of industrial diseases. The organic derivatives of lead—themselves volatile liquids—have exceedingly pronounced poisonous properties. In fact, tetra-ethyl lead has been compared with some of the most potent poisonous alkaloids.[2] As sold to the consumer,[3] however, the potent ingredient is present in only about 1 part in 1,000.[4] Hence there exist two types of possible hazards: The first is concerned with the manufacture and does not affect the public at large; the second concerns the gasoline containing tetra-ethyl lead, which is sold to the consuming public. The recent calamity at the Bayway plant was a manufacturing disaster, and reemphasizes the danger of inadequate preventive measures when new processes are being worked out on a large scale.

The second type of hazard concerns the public riding along congested traffic lanes and breathing the exhaust gases from many motors. THE JOURNAL has not been unmindful of the possibility of poisonings from this source, particularly as lead is cumulative in its actions; but up to the present no positive evidence of toxicity has been obtained.[5] The United States Bureau of Mines, in a circular just issued, reports exposure of various animals (about 100 in all) to a definite concentration [6] of exhaust gas from an engine using ethyl gasoline. The animals were observed throughout a test period of eight months for symptoms of lead poisoning, as colic, paralysis, loss of appetite and loss of weight; blood examinations were made as well as examinations of tissues. According to the bureau, this investigation "indicates seeming remoteness of any danger of undue lead accumulation in the streets through the discharging of scale from automobile motors." On the other hand, the boards of health of New York and other nearby towns have forbidden the use of gasoline treated with tetra-ethyl lead, and some well known public health authorities have warned against the danger to health arising from its use. In the meantime, physicians may watch for possible manifestations of this form of lead poisoning, even though the evidence thus far available is negative.

1. Collis, E. L., and Greenwood, M.: The Health of the Industrial Worker, Philadelphia, P. Blakiston's Son & Co., 1921, p. 2.
2. A Really Dangerous Dope, editorial, Chemist & Druggist, Feb. 2, 1924, p. 163. Mason, E. C.: The Pharmacologic Action of Organic Lead Compounds, J. Lab. & Clin. Med. **6**: 427 (May) 1921 (with references to other literature).
3. Under the name ethyl gas.
4. An organic chlorin compound is added to convert the organic lead compound to lead chlorid in the exhaust; a dye is also added to denote the treated gasoline.
5. "Ethyl Gas" — Tetra-Ethyl Lead, Queries and Minor Notes, J. A. M. A. **83**: 552 (Aug. 16) 1924.
6. The carbon monoxid content of the exhaust gas from the engine was less than half that found in the average automobile exhaust gases.

RÔLE OF THE PATHOLOGIST IN DIAGNOSIS

There are various criteria of success in the practice of medicine. Some of them are appraised in terms of human psychology, a circumstance that renders them none the less real and legitimate in certain cases. Others are expressed in the restoration of health to those who have consulted the physician; and in such instances the real contribution of the latter is not so easy to evaluate, because of the fact that recovery from injuries of varied sorts is an inherent property of living tissues, and often proceeds without human intervention, or sometimes even despite it. Again, there are pathologic conditions that the clinician may remedy frequently, provided he can recognize them with accuracy. Success in the treatment of such ailments depends first on precision in diagnosis and then on skill in professional ministrations. A few years ago, a lively discussion was awakened not only in professional but also in lay circles when it was announced that a large number of diagnoses in hospitals were demonstrated through observations at operations or by necropsy findings to be in error. This seemed at first thought to be a serious incrimination of the efficacy of the medical examination of the sick, and it undoubtedly led to considerable frank criticism as well as some wholesome introspection.

Meanwhile, the facilities for diagnosis have been considerably amplified, particularly in the direction of chemical examination of the blood and various secretions and excretions. The routine examination of the urine, so long in vogue, has been supplemented by the microchemistry of the blood and spinal fluid. Gastric analysis has been extended so that it would be far more

accurate today to speak of gastro-intestinal analysis in the enlarged considerations of alimentation. Immunologic technic and certain phases of bacteriologic examination have grown by leaps and bounds. The estimation of the basal metabolic rate has become a common procedure, not unknown at the bedside in the home. The roentgen ray finds application in the smallest communities through local equipment for roentgenographic observations; and the cardiograph has ceased to be a diagnostic novelty.

Have the innovations been justified in the sense of putting medicine on a more exact basis; or do they, as not a few sincerely believe, merely introduce an element of false security and pseudoscience into the task of the clinician? Some evidence in relation to this has been secured by McCarthy [2] of the Mayo Clinic. He has studied 1,000 consecutive surgical cases for each of sixteen years and attempted to determine what percentage of them failed to have absolutely positive and unqualified clinical preoperative diagnoses. In the 16,000 cases, the percentage was 24.6. This percentage figure has increased from 25 in the first year to 36.7 in the last year, despite increase in laboratory diagnostic methods and facilities. In the last thousand cases of this series, there was a 9.9 per cent. actual error in anatomic location and type of lesion with different prognostic and therapeutic values. McCarthy regards this as a significant figure. It indicates, as he states, that there might have been a tragic result if the surgeons had not been capable of dealing with all types of conditions and had not had detailed microscopic diagnosis at hand. In no instance in this series, he adds, was the clinical diagnostic failure tragic. The figure merely shows what can and what cannot be done with gross clinical symptoms and signs alone. In 168 malignant conditions, only 70.2 per cent. were diagnosed positively malignant by the clinicians; 2.5 per cent. were diagnosed benign, and in 27.3 per cent. malignancy was suspected as a possibility.

How can the situation be improved? The advice of McCarthy centers in the development of a more intimate knowledge of pathology on the part of physicians, and a closer cooperation in diagnosis between pathologists and physicians. The pathologist is the one "specialist" that is almost never drawn into consultation—until it is too late. He is regarded by many as a sort of glorified technician who prepares the final record of a perplexing case; yet the pathologist is the person most likely to correlate the clinical picture with the morbid anatomy of disease. As McCarthy expresses it, our physicians of today, as also of yesterday, do not know gastric ulcer, duodenal ulcer, hepatitis, cholecystitis, tuberculosis of the kidneys, pancreatitis, appendicitis, ovarian conditions and uterine conditions if they have not constantly correlated the clinical pictures with the actual appearances at exploration. It is one thing to read a surgical and pathologic report, and another actually to visualize the conditions. No physician can be a great pathologist until he has seen disease in the living patient. He cannot learn the most about disease unless he actually checks his clinical judgment. The pathologist may yet become the most indispensable of all consultants in times of stress and diagnostic doubt.

2. McCarthy, W. C.: The Pathologist of 1940, J. Lab. & Clin. Med. 9: 733 (Aug.) 1924.

THE HISTORY OF SYPHILIS

Medical historians continue to wage ardent and wordy conflict as to the time and place of origin of that most protean of maladies, syphilis. The matter resolves itself at this time into two definite schools of opinion: (1) that sailors of Columbus carried the disease to Europe, following their return from the American expedition; and (2) that the disease was widespread and prevalent in ancient times, long before the Columbian voyage.[1]

In a review of a recently published Japanese contribution to the subject, Dr. Charles Singer,[2] the British medical historian, dismisses summarily the Columbian theory, although he is willing to admit that syphilis was unknown in classical antiquity, and that there was a great outbreak of the disease in a virulent form in Europe in 1495. On the other hand, he finds a high degree of probability in the statements that the disease was known in Germany, France and Italy as far back as the thirteenth century; that the outbreak of 1495 had no relation to the siege of Naples, on the ground that there was no such siege, and that the campaign of the French in northern Italy in 1495 was brought to an end by a disease which, not improbably, was paratyphoid fever. Furthermore, his analysis of the available evidence indicates that the disease became virulent in Germany earlier than it did in Italy or in Spain. Those who are acquainted with this subject will give thought to the points raised by Dr. Singer, although it must be borne in mind that the considerations referred to have not been definitely established. Dr. Burton P. Thom [3] believes that the condition affecting the French army was farcy or glanders, rather than syphilis. Whereas Singer states that no bones found in America or elsewhere exhibiting syphilitic lesions have been of proved pre-Columbian origin, Thom asserts that "the bones from pre-Columbian graves offer conclusive evidence of the fact that syphilis was present among the aborigines when the Spaniards came to America."

Dr. Singer presents in abstract the evidence accumulated by Prof. Keizo Dohi of Tokyo as to the possibility of a Far Eastern origin of syphilis. Dohi traces

1. Pusey, W. A.: Syphilis as a Modern Problem, Chicago, American Medical Association, 1916.
2. Singer, Charles: Review of Beiträge zur Geschichte der Syphilis insbesondere über ihren Ursprung und ihre Pathologie in Ostasien, by Prof. Keizo Dohi, Tokyo, 1923, Brit. J. Dermat. & Syph. 36: 457 (Oct.) 1924.
3. Thom, B. P.: Syphilis, Philadelphia, Lea and Febiger, 1922.

the course of the virulent outbreak of the disease throughout the Far East during the years following 1497. It appeared in Calicut in 1498, being conveyed thither by the expedition of the Portuguese explorer Vasco da Gama. Ceylon was infected in 1505, and Malacca in 1511. Thence the disease passed to Canton and southern China, northeast to Japan, and reached Kyoto and Tokyo as early as 1512. Here, of course, is merely additional evidence of the severity of the outbreak of this disease, which devastated Europe a decade previously. Beyond doubt, the virulent type of oriental syphilis was of European origin. The newer evidence does not, however, answer in any way the question as to whether or not a milder form of the disease previously existed in the Orient. Historical researches by Chinese and Japanese scholars have not been sufficient to establish the facts, and the ancient records embalmed in early oriental documents are such as to discourage investigation by any but oriental scholars.

As has been said, syphilis is a protean disease and simulates in its symptoms almost every known malady from which mankind suffers. Conversely, many common diseases may be erroneously diagnosed as syphilis, unless the physician avails himself of such diagnostic aids as the illuminated dark field and the Wassermann test. The task of the historian, who must determine whether or not the descriptions of disease conditions written down by even the most careful of observers in the period antedating 1400 were descriptive of syphilis or of some similar condition, is beyond question a most difficult one. Perhaps the newer knowledge of paleontological pathology will contribute information that will be of service to the medical historian interested in this special field. In any event, the adherents of both theories as to the origin of this venereal disease must have their arguments answered at this time with the words, "Not proven."

Current Comment

TOXEMIA AND CATARACT

Several investigators[1] have lately described the development of cataract in animals that had survived the extirpation of the parathyroid structures for long periods. In connection with such a condition, it is natural to think of a possible relationship between disordered calcium metabolism and the eye defect; for recent investigations have tended to link up parathyroid deficiency with a lowered content of calcium in the blood.[2] The latter is an accompaniment of various types of tetany, in connection with which some observers have noted cataract in man. There is also a belief on the part of some students of the subject that a relative or absolute parathyroid deficiency may produce a liability to toxemia.[3] On this basis, the progressive eye disturbance seen in some parathyroidectomized animals has been ascribed to a continuous low grade toxemia. In the course of time the division of the lens becomes visible, and many opaque spots, characteristic of punctate cataract, appear throughout the lens and on the posterior capsule. Ultimately there may be complete opacity and partial blindness. We are not prepared at the present stage of the evidence to champion any theory of the genesis of cataract; but the new opportunities to study its problems on an experimental basis are to be welcomed. If an experimentally produced defect in the detoxicating mechanism of the body can actually affect the integrity of the lens, as Dragstedt and his co-workers assume, is it not equally likely that other structures may also become similarly deranged when slight changes are not so readily observed?

TONSILLECTOMY AS PROTECTION AGAINST INFECTION

It is sometimes easy to be carried away by unwarranted enthusiasms. What is good for one person—or even for a hundred persons—may not necessarily be equally helpful or healthful for the multitude. It is a modern tendency to apply generalization rather freely to a few facts, so that premature schemes of standardization sometimes arise. From time immemorial there has been a search for a universal aliment, a universal remedy or panacea applicable to all persons and conditions with assurance of satisfactory outcome. So it happens that the occasional person fails to secure his deserts because they fail to fit into the standardized plan. The practice of medicine should always preserve a critical attitude that will prevent it from being misled by current enthusiasms into an occasional sense of false security. This need is emphasized by differences of opinion that arise when popular therapeutic procedures or prophylactic measures are critically surveyed. A case in point is the recent discussion of "wholesale tonsillectomy," particularly among the school population. If more and more tonsillectomies are done each year in a community, the incidence of infections of certain sorts for which the tonsils are reputed portals of entry to the body should be lessened. There is a general belief that tonsillectomy affords a real protection against tonsillitis. According to Kaiser's report[4] from Rochester, N. Y., where thousands of tonsillectomies are said to have been performed in recent years, the incidence of scarlet fever does not seem to be affected by the operation; nor has it conferred immunity against diphtheria, though it may lessen the amount of tissue liable to invasion. From studies made in Baltimore, on the other hand, Doull[5] of the School of Hygiene and Public Health at Johns Hopkins University, has concluded that there is a significant negative association between tonsillectomy and the occurrence of diphtheria; in other words, when the tonsils have

1. Luckhardt, A. B., and Blumenstock, J.: Am. J. Physiol. **63**: 3, 1923. Dragstedt, L. R.; Sudan, A. C., and Phillips, K.: Ibid. **69**: 477 (Aug.) 1924.
2. The Calcium Factor in Tetany, editorial, J. A. M. A. **83**: 1081 (Oct. 4) 1924.
3. The Parathyroids and Toxemia, editorial, J. A. M. A. **83**: 1433 (Nov. 1) 1924.
4. Kaiser, A. D.: Incidence of Infection in Tonsillectomized Children, abstr. J. A. M. A. **83**: 1639 (May 17) 1924.
5. Doull, J. A.: A Note on the Relationship of Tonsillectomy to the Occurrence of Scarlet Fever and Diphtheria, Pub. Health Rep. **39**: 1833 (Aug. 1) 1924.

been removed, children are distinctly less liable to contract diphtheria than are other children of corresponding age under similar environmental conditions. The observations refer to only one locality and to a rather brief period of time; but, considering the agreement with general clinical experience, it seems probable that a similar negative association between tonsillectomy and liability to diphtheria may be more or less general. For scarlet fever, however, no significant difference was shown. More direct evidence as to the real value of the removal of chronically inflamed or hypertrophied tonsils, not for the relief of immediate symptoms but more as a means of protection against subsequent infection, is greatly needed.

THE UNDERTAKER AND POSTMORTEM EXAMINATIONS

At the annual session of the Medical Society of the State of Pennsylvania, in 1923, a committee was appointed to ascertain: (1) why the undertakers object to permission being given for necropsy, and (2) what might be done to secure the cooperation of the undertakers in increasing the number of postmortem examinations of persons dying from disease. The committee, which consulted with committees from the morticians' association, has rendered a report, which is being sent to all the institutions in Pennsylvania. Obviously, the chief objections of the undertakers to routine postmortem examinations are that preference may be given to certain undertakers by some institutions, and that mutilation of the bodies by the postmortem examination makes more difficult the task of the embalmer. Therefore, the Pennsylvania committee has outlined a number of points that should be observed by the pathologist. These small details are important so far as relates to the appearance of the body after it is embalmed and to the course of embalming. They concern proper modes of dissection and opening of the skull. The committee has also outlined a number of conclusions and recommendations, which merit attention by all who are interested in extending medical science through increase in the number of postmortem examinations. The medical profession should cooperate more closely with the mortician in proper care of the body after death. Through raising the standards of the undertaking profession, men will be developed who are anxious to cooperate with the physician in making proper postmortem examinations. It is hoped that the intern will be instructed in methods of securing consent to postmortem examinations and that the public will be educated as to the value of the procedure. Meetings should be arranged in each institution between members of the staff, the clergy of the community and the undertakers at which the matter may be fully discussed and cooperation invited. Undertakers may also be informed that preference will continue to be given by medical institutions to those who are willing to aid scientific work by proper cooperation in the matter of postmortem examinations. The report of the committee of the state society of Pennsylvania is an interesting document, and worthy of the attention of every medical group concerned with this problem.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Personal.—Dr. Winfield K. Sharp, Jr., Florence, U. S. Public Health Service, has been reassigned as assistant to the state health officer in charge of health activities in northern Alabama.

Health Unit a Subtraining Station.—The Baldwin County health unit has been designated as a special training station for prospective officers of the International Health Board. Dr. Wilson G. Smillie is in charge and Dr. George C. Marlette is the county health officer.

ARKANSAS

Personal.—Dr. Robert Caldwell, Little Rock, has been reappointed a member of the State Board of Charities.—Under the editorial direction of Drs. Darmon A. Rhinehart, Silas C. Fulmer and John B. Dooley, Little Rock, the Pulaski County Medical Society has issued the first number of a monthly bulletin.

CALIFORNIA

Pneumonic Plague at Los Angeles.—An epidemic of pneumonic plague exists at Los Angeles which thus far has been confined to the Mexican population. There had been twenty-five deaths up to November 4, on which date there was a conference of thirty-eight representatives of federal, state, county and city health bureaus, and the police and Chamber of Commerce. As THE JOURNAL goes to press, the latest reports indicate there have been five new cases but no additional deaths in the last twenty-four hours. During the preceding twenty-four hours no new cases had been reported. Twenty trained nurses were to enter the main quarantined area, November 5, with a corps of physicians to make a thorough survey of every home in the district, which includes about sixteen square blocks of the Mexican and Chinese quarters.

Testimony Before the State Board.—At the recent hearing of Dr. Frank P. Young, Los Angeles, head of the defunct Pacific Medical College, before the state board of medical examiners (Dr. Young's license to practice medicine was revoked at this meeting), a chiropractor by the name of Andrew Draser testified that he purchased a diploma from the Pacific Medical College in 1920 for $150, and received it two days after paying the money, although he was never inside the college, it is reported. Draser also testified that Dr. Young wrote him a letter of introduction to Dr. Robert Adcox, St. Louis, who has since been convicted of bribery in connection with diploma mills and sentenced to prison; and that for $140, Adcox secured fake grammar and high school credentials from Missouri and Indiana for him. Adcox also accepted $300, it is reported, for placing Draser in the St. Louis College of Physicians and Surgeons as a student. William P. Sachs, formerly examiner of schools for Missouri and a confessed member of the diploma mill ring, said, it is reported, that the Pacific Medical College of Los Angeles, of which Dr. Frank P. Young is president, was only one of the links in the Adcox chain, and a diploma from there and a certain sum of money given to Adcox would obtain an applicant entrance to the St. Louis College of Physicians and Surgeons. Sachs is reported to have said also that Adcox had direct connection with certain so-called colleges in California, Florida, Connecticut and several other states; that Oriental University, Washington, D. C., was one of the branches of the diploma mill and that in Baltimore one of Adcox's representatives even peddled diplomas from a suitcase.

DISTRICT OF COLUMBIA

Personal.—Dr. William H. Wilmer, Washington, was recently decorated with the cross of a commander of the Legion of Honor of France "for high service to science and special service to France in the World War." The honor was conferred by M. Jusserand, the French ambassador.

IDAHO

Smallpox.—Twelve cases of smallpox were reported present at Nampa, October 21. The disease was in a mild form.

ILLINOIS

Personal.—Dr. Alexander P. Robertson, Alton, has been elected president of the Alton Medical Society and Dr. Oria O. Giberson, Alton, vice president.——Dr. Herbert Wright, Berwyn, has been appointed county health officer of Cook County.——Drs. Harold Swanberg, Walter D. Stevenson and Ralph McReynolds, all of Quincy, have been appointed on the Community Chest Committee of that city.——Dr. Harry Frey, city physician, Rock Island, has been elected chairman of the board of health of that city.——Dr. Ethel M. Hayes, Toronto, Canada, has been appointed resident physician for the Decatur and Macon County Tuberculosis Sanatorium.——Dr. Walter C. Reineking, medical director and superintendent of the Rockford Municipal Sanitarium, has been reelected president of the Rockford Health Council.——Dr. William Walter Wyatt, Peoria, has been elected president of the medical staff of the Methodist Hospital; Dr. Sidney H. Easton, Peoria, vice president, and Dr. Orville E. Barbour, Peoria, reelected secretary-treasurer.——Dr. Milton B. Clayton, Ashland, Ky., has been appointed assistant in hygiene and medical adviser for men on the health service staff, University of Illinois, Champaign.——Dr. James W. Pettit, Ottawa, was reelected president of the Illinois Tuberculosis Association at the recent annual convention in Decatur. Drs. Lewis C. Taylor, Springfield, W. C. Reineking, Rockford, and Cecil M. Jack, Decatur, were elected first, fourth and fifth vice presidents, respectively, and Mrs. Frank P. Auld, Shelbyville, secretary.

Chicago

Memorial Service for Dr. Sippy.—The University of Chicago announces that memorial services will be held in Leon Mandel Hall at 4 o'clock, November 9, in honor of the late Dr. Bertram W. Sippy.

Society News.—A diagnostic clinic by Drs. George W. Crile, Cleveland, David Riesman, Philadelphia, Frank H. Lahey and Charles Macfie Campbell, Boston, was held by the Chicago Medical Society in the Marshall Field Annex Building, October 29. A dinner was given in honor of the guests at the Hamilton Club.——At a meeting of the Institute of Medicine of Chicago and the Society of Internal Medicine, October 27, at the City Club, Dr. Louis H. Newburgh, professor of clinical investigation, University of Michigan Medical School, Ann Arbor, gave an illustrated lecture on "The Dietetic Production of Experimental Arteriosclerosis."——The Chicago Society of Anesthetists will meet jointly, November 19, with the Chicago Medical Society, and, December 16, with the Chicago Dental Society.——At the meeting of the Chicago Laryngological and Otological Society, November 10, the members of the National Board of Examiners in otolaryngology will be guests of honor of the society.——The annual meeting of the Central Neuropsychiatric Association was held at Northwestern University Medical School and Wesley Memorial Hospital, October 31 and November 1.——The Chicago Society of Industrial Medicine and Surgery, which met at the Cook County Hospital, November 3, was addressed by Dr. Karl A. Meyer and Dr. George L. Davenport on "Acute Abdominal Injuries; the Diagnosis and Treatment."——The Chicago Council of Medical Women met, October 28, at the American College of Surgeons and was addressed by Dr. Maud H. Winnett on "The Chemistry and Physiology of the Blood as Related to Hemorrhage"; by Metta Loomis, of the Quine Library, University of Illinois Medical Department, Chicago, on "The Contribution Which Women Have Made to Medical Literature," and by Dr. Rosina R. Wistein, Cedar Rapids, Iowa, on "Medical Women of Czechoslovakia."——There was a joint meeting of the Chicago Neurological Society, the Chicago Orthopedic Society, the Chicago Surgical Society and the Institute of Medicine of Chicago, at the City Club, October 30, at which the subject of "Sympathectomy in Spastic Paralysis" was presented by Drs. Allen B. Kanavel, Loyal E. Davis and Lewis J. Pollock.

IOWA

Physician Released Following Hearing.—Dr. Ora C. Rogers, Davenport, who was arrested on a charge of issuing prescriptions for liquor in bad faith, was arraigned for a hearing, October 20, it is reported. The judge held in this case there was no evidence to disprove Dr. Rogers' story that he did not know that the man in whose name the prescription was issued was dead, and the case was accordingly dismissed. Dr. Rogers' permit to write prescriptions for liquor was revoked in September when he failed to appear to answer charges against him claiming that he had issued prescriptions February 26 and March 26-27 without regard for the law, it is reported.

KANSAS

Faculty Appointments.—The following physicians have recently been appointed to the faculty of the University of Kansas School of Medicine, Rosedale: Drs. Frank R. Teachenor, Kansas City, Mo., instructor in surgery; John G. Hayden, Kansas City, Mo., assistant professor of surgery; Lewis G. Allen, Kansas City, instructor in radiology, and Frank M. Denslow, Kansas City, Mo., assistant in urology.

LOUISIANA

Case of Plague Imported.—Jack von Spendunk, a Belgian stowaway on the steamship *Atlanticos*, which arrived at New Orleans from Algeria, October 28, is critically ill with bubonic plague, the diagnosis, it is reported, having been confirmed by federal and state officials.

MAINE

Personal.—Dr. John Hewat, Augusta, director of the diagnostic laboratory of the state department of health, has resigned in order to become pathologist at the Central Maine General Hospital, Lewiston.

Crippled Children's Clinic.—The fifth, in a series of clinics in behalf of the crippled children of Maine, which is being conducted under the auspices of the Maine Public Health Association, was held at the Sisters' Hospital, Waterville, October 20. Some cases were referred to the Children's Hospital at Portland, and others will be followed up for treatment in their homes.

MARYLAND

Health Officers Meet.—Field men of the state department of health from all sections of Maryland met, October 31, at headquarters, Baltimore, to review the health work in the counties. Dr. John S. Fulton, director of the department, presided.

New Crippled Children's Hospital.—The new building of the Children's Hospital School, Baltimore, was formally opened November 1, making possible the accommodation of 121 crippled children instead of fifty-five, the former capacity. It is estimated that among the crippled children of the state there are 8,000 who need surgical treatment. The increased accommodations mean that the school can treat between 500 and 600 children annually. About 80 per cent. of the school's personnel are free patients; the others pay $14 a week.

MASSACHUSETTS

Society News.—The Clinical and Surgical Association of Massachusetts held its semiannual meeting at the Toronto General Hospital, Toronto, Ont., Canada, October 20-21. A special clinic was held.

University Appointments.—Dr. Robert B. Osgood, chief of staff of the orthopedic service at the Massachusetts General and the Children's hospitals, has been appointed John Ball and Buckminster Brown professor of orthopedic surgery at the Harvard University Medical School to succeed the late Dr. Robert W. Lovett.——Dr. William L. Moss, formerly assistant professor of preventive medicine, Harvard University Medical School, has been appointed assistant professor of bacteriology.

MINNESOTA

Smallpox in Minneapolis.—It was reported, October 26, that eight deaths from smallpox had occurred in Minneapolis in the last five days, and, on November 3, that the total number of deaths in the city from smallpox had reached twenty-seven and the number of cases, 116.

Professor Kendall Honored.—Prof. Edward C. Kendall, Ph.D., who is in charge of the chemical division of the Mayo Foundation, University of Minnesota, Minneapolis, has been appointed Chandler lecturer at Columbia University, New York, and will receive the Chandler Medal at the meeting to be held in February.

Personal.—Dr. R. S. Vivian has succeeded Dr. Donald H. Edwards as school physician of Hibbing.——Dr. Robert P. Pearsall has been appointed city health officer of Virginia

for the unexpired term of Dr. Charles W. Miller, resigned. ——Dr. D. C. Lochead, field secretary and clinician for the Minnesota Public Health Association, has resigned to accept the position of deputy health officer of Rochester, of which city Dr. Charles H. Mayo is health officer.

MISSISSIPPI

Personal.—Dr. Edward M. Fahnestock, Gulfport, has been appointed county physician of Harrison County.——Dr. Alfred D. Tisdale, health officer of Jones County, has resigned to accept a position at the South Mississippi Charity Hospital at Laurel.

MISSOURI

Personal.—Dr. William W. Gray has been appointed city health officer of St. Joseph to succeed Dr. Leroi Beck.——Dr. Frederick Johansen, Kohaka, has accepted a position with the U. S. Public Health Service and will be stationed at the Marine Hospital, Carville, La.

Society News.—Dr. A. V. Hill, professor of physiology, University of London, England, and winner of the Nobel Prize in medicine in 1922 for work on the mechanism of muscular contraction, gave an address at Washington University Medical School, St. Louis, October 24, on "The Thermodynamics of Muscular Contraction," and, October 27, on "The Dynamics of Muscular Contraction."——Dr. Robert P. Miller will address the Jackson County Medical Society, Kansas City, November 11, on "Intestinal Obstruction" and Dr. Andrew L. Skoog on "Tryparsemide in the Treatment of Neurosyphilis."

Physician Jailed.—Dr. Leon Hurwitz, Joplin, was placed in the county jail at Carthage, October 23, it is reported, "for the first time in the history of his many arrests on charges of violating the Harrison Narcotic Law and other criminal statutes." Dr. Hurwitz faces, it is reported, a three year term in the penitentiary at Fort Leavenworth, with the last resort of appeal apparently exhausted. He was convicted on two counts on a charge of violating the Harrison Narcotic Law in the federal district court at Joplin in June. His license to practice medicine was revoked by the state board of health for a period of fifteen years, in April, 1923.

NEW JERSEY

Society News.—At the recent annual meeting of the Warren County Medical Society, Washington, Dr. Charles H. Lyon, Phillipsburg, was elected president; Dr. Lawrence H. Bloom, Phillipsburg, vice president; Dr. Louis C. Osmun, Hackettstown, secretary; Dr. George W. Cummins, Belvidere, treasurer. Addresses were made by Dr. Joseph Clarence Keeler, professor of otology, Jefferson Medical College of Philadelphia, and by Dr. Henry O. Reik, New York, editor of the *Journal of the Medical Society of New Jersey*. A committee of five was appointed to arrange for the one hundredth anniversary of the society next year.

NEW YORK

Smallpox in Johnson City.—Seventy cases of smallpox are under quarantine in fifty-nine homes in Johnson City. Health officers state that the mild form of smallpox prevalent there permits patients to attend business while suffering from the disease and makes control difficult.

Society News.—At the annual meeting of the Essex County Medical Society, Port Henry, October 8, Dr. Alexander Gersen, Elizabethtown, was elected president; Dr. Peter Noe, Jr., Willsboro, vice president, and Dr. Harold J. Harris, Westport, secretary-treasurer.——Dr. Samuel T. Barton, Canastota, was elected president at the annual meeting of the Madison County Medical Society, Oneida, October 8; Dr. Walter W. Osgood, Cazenovia, vice president; Dr. George W. Miles, Oneida, secretary (reelected), and Dr. Lavinia R. Davis, Oneida, treasurer (reelected).——The New York Tuberculosis Association announced the removal of its offices, November 1, from 10 East Thirty-Ninth Street to 244 Madison Avenue.——Dr. Harry A. Bray, Saranac Lake, addressed the Rochester Academy of Medicine, October 22, on "The Mechanism of Compensation in Tuberculosis and Its Relation to Physical Diagnosis." Dr. John J. Moorehead, New York, will address the surgical section of the Academy, November 26, on "Compensation; The End Results After Injury."——Dr. Matthias Nicoll, Jr., state commissioner of health, addressed the Schoharie County Medical Society, October 18, on "Is the Medical Profession Losing Prestige?"

William Wilson Arrested Again.—William Wilson, alias Cohen, whose arrest in Cleveland, Ohio, was reported in The Journal, September 6, is again, it seems, in the toils of the law. According to Buffalo papers, November 1, Wilson, who claims to be a miracle man able to heal any disease by divine power, was arrested, October 31, and taken into custody. With him was taken a woman companion, one Ethel May Wilson, said by the police to be known also as Ethel Moore and Ethel Cohen and whose right name is said to be May Smith Pinkham. A Buffalo detective who went to Wilson's office with the story that he had been injured in a football game and suffered from gallstones was "treated" by Wilson. The treatment consisted, according to the report, of a slip of paper covered with mysterious characters given to the "patient" with instructions that the slip was to be read and the patient was to think of Wilson. The treatment cost $10, which was paid with a marked bill. Wilson and the woman were then arrested. The paper reports further that the police arrested one Moritz N. Wolff at the same address as that occupied by the Wilsons. Wolff is said to have been selling a medicine made of salt and water. Wilson, alias Cohen, is said to have given his home address as Malden, Mass.

Infantile Paralysis in Syracuse.—One hundred and thirty-one cases of infantile paralysis had come under the care of health authorities in Syracuse up to October 1, since the present outbreak began in May. The deputy health commissioner, Dr. George C. Ruhland, stated that in fifty-one of these cases a diagnosis was made within forty-eight hours after the onset of the acute illness while in the outbreak of 1922 only three of a total of forty-eight cases were diagnosed so promptly. It is too soon to say what the final outcome of the present outbreak will be, but with the use of human immune serum recovery followed in seven out of every nine cases that were treated within twenty-four to forty-eight hours after the disease was contracted. Serum was administered to fifty-one patients. Of these, twelve went on to paralysis despite the use of serum, but the case mortality so far is well below the average mortality rate for the outbreak in 1922. Nothing new has come to light on the epidemiology of this disease. It is difficult to trace contact in these cases, but a number of those that developed in Syracuse seem to support the contact theory. However, in only one instance have two cases occurred in the same family. The problem of dealing with infantile paralysis, in view of the absence of more certain methods, rests on methods of quarantine and control of the known cases and contacts.

New York City

Harvey Lecture.—The third Harvey Society lecture of the New York Academy of Medicine will be delivered, November 15, by Dr. A. V. Hill, professor of physiology, University of London, England. His subject will be "The Recovery Process after Muscular Exercise in Man."

Grand Jury Refused to Indict Physician.—Dr. Harry M. Serota, New York, who was held to the federal grand jury some weeks ago on waiving examination on a charge of violating the Harrison Narcotic Law, has been discharged by the court. The grand jury refused, it is reported, to indict Dr. Serota.

Transfer of Patients.—Bird S. Coler, commissioner of public welfare, in an address at the Post-Graduate Medical College, stated that in the six months, ending July 1, nearly 200 patients brought into the Kings County Hospital from private hospitals died within twenty-four hours. Dr. Coler called attention to the fact that such transfer of dying patients is a criminal offense on the part of private hospitals and that if it is not stopped, prosecutions will follow.

Health Mobilization Day.—Health Commissioner Dr. Frank J. Monaghan has issued a call to fifty social and health agencies in the Bellevue-Yorkville district to join with representatives of the Milbank Memorial Fund in celebrating November 14 as health mobilization day. This is a step in the initiation of the experiment made possible by the Milbank Memorial Fund to test the assertion that twenty years can be added to the present average span of human life.

Hospital News.—The New York Postgraduate Hospital and Medical School has purchased an adjoining building of the United Hebrew Charities, making the capacity of the hospital 410 beds.——A donation of $5,000 has been given to the new Hospital for Deformities for the establishment of a bronchoscopic clinic, which will be under the direction of Dr. Moses Joseph Mandelbaum.——The Hotel Roosevelt, recently opened at Madison Avenue and Forty-Fifth Street, includes a com-

plete hospital suite, comprising physician's office, waiting room for guests, waiting room and dispensary for employees, laboratory and operating room. The resident staff consists of a physician and assistant and three nurses.

Sigma Xi Dinner.—Dr. Vernon Kellogg, secretary of the National Research Council and member of the executive committee of Sigma Xi, will give the principal address at a dinner, November 17, at the Fraternity Club, 245 Madison Avenue. His subject will be "The New Battle Front of Civilization." Supplementary remarks will be made by E. L. Thorndike, professor of psychology at Columbia University, Edwin E. Slosson, director of science research, F. B. Jewett, in charge of research of the Western Electric Company, Francis Carter Wood, director of cancer research, Crocker Laboratory, and Michael Pupin, professor of electromechanics at Columbia University. Secretary Edward Ellery, Union College, will be toastmaster. Every one of the 1,000 alumni of Sigma Xi in New York City is invited to attend.

NORTH CAROLINA

Physician Fined.—Dr. Thomas A. Smith, Charlotte, was convicted, in the Western North Carolina District U. S. Court, of violation of the Harrison Narcotic Law, October 14, fined $500 and ordered to surrender his license to dispense or prescribe narcotics of any kind. Charges have also been preferred against Dr. Smith with the state board of medical examiners, and a summons issued for him to appear before the board in Gastonia, December 2, to show cause why his license to practice medicine should not be revoked for unprofessional conduct, it is reported.

OHIO

Scarlet Fever Closes Schools.—The Castalia High School was recently closed on account of scarlet fever. There were about twenty cases, it is reported, in Castalia and vicinity, none of which seemed to be of a virulent type.

Society News.—Dr. Noble Sproat Heaney, associate clinical professor of gynecology and obstetrics, Rush Medical College, Chicago, gave a clinic at the request of the Allen County Academy of Medicine, at St. Rita's Hospital, Lima, October 21, and in the evening addressed the academy on "The Operability of Certain Gynecologic Conditions."

Hospital News.—The new Bethesda Hospital, Cincinnati, for the construction of which bids have been taken, will be a six-story building with a capacity of 163 beds, costing when equipped about $860,000.——Plans are being made for an addition to the Franklin County Tuberculosis Sanitarium to cost $125,000.——St. Vincent's Hospital, Toledo, has awarded the contract for the construction of the $300,000 addition for pediatric, general surgical and medical cases, and a maternity department.

Cancer Plasterer Jailed.—Nora Pfeiffer, Ironton, who claims to remove cancer by the application of plasters to the skin, was arrested, October 20, by Frank Dorsey, special officer of the state medical board, and placed in jail, it is reported, for practicing medicine without a license. Some time ago Miss Pfeiffer was found guilty of practicing medicine without a license at Findlay, fined $150 and warned to leave that part of the state. Cases are now pending at Wellston, it is reported, where Miss Pfeiffer treated five persons supposed to have cancer, four of whom died as the result of infection following treatment.

PENNSYLVANIA

Mental Clinics.—The thirty-fourth state mental health clinic opened in Chester, September 23. The movement to establish this clinic was instigated by Dr. Adam J. Simpson, Chester, member of the Public Charities Association of Pennsylvania, with the support of the Mental Hygiene Division. It is expected that before the first of the year mental health clinics will be functioning also in Huntingdon, Carlisle, Bradford, Chambersburg and Jenkintown.

Philadelphia

Hospital Closed.—It is reported that about thirty babies born in the Jewish Maternity Hospital, 532 Spruce Street, having become infected there by contact with the "possessor of a virulent ailment." The hospital has been closed temporarily to new patients. It is the first time in fifty years that the institution has had to close, according to Edward Brylawski, its president. Dr. Camille J. Stamm, medical director of the hospital, stated, October 31, that it had been impossible to discover definitely the source of the trouble.

Personal.—Dr. John I. Hunter and Dr. N. D. Royle, both of Sydney, Australia, delivered the fourteenth Mary Scott Newbold lecture at the College of Physicians, October 31.——Dr. George de Schweinitz, past president of the American Medical Association, has been selected by the trustees of the University of Pennsylvania as one of three candidates to be voted on by the alumni to fill the trusteeship made vacant by the death of Dr. Robert G. Le Conte. Dr. de Schweinitz was chosen from six nominees submitted to the board by the directors of the general alumni society.

Samuel Gustine Thompson Annex Dedicated.—This annex to Jefferson Medical College and its hospitals was formally opened, October 30. Dedicatory exercises were held in the clinical amphitheater of the new building, Sansom Street, west of Tenth, with Alba B. Johnson, chairman of the hospital committee, presiding. The annex is a sixteen-story, fireproof structure, which cost $2,000,000. Addresses were made at the ceremonies by William Potter, president of Jefferson Medical College and former ambassador to Italy; by Dr. William W. Keen; by the Rt. Rev. Monsignor Edmond J. Fitzmaurice, and by the Rev. Dr. Abraham A. Newman. The eighth, ninth, tenth, eleventh, twelfth and so-called "star" floors will be turned into private hospital rooms. The income from the private rooms and from other sources provides for the free treatment of the sick and injured.

SOUTH CAROLINA

Celebration of Centennial.—The trustees and faculty of the Medical College of South Carolina announce the celebration of the centennial of the foundation of the medical college, to be held in Charleston, November 12-13. There will be a reception at the Charleston Museum, November 12, and a banquet in the evening. Among other features on the program will be the unveiling of a memorial tablet by the Class of 1900 to Dr. Frank L. Parker, late professor of anatomy and dean of the medical college.

VIRGINIA

Personal.—Dr. Fayette A. Sinclair, Newport News, and Dr. Joseph Frasia Jones, Richmond, have been elected president and treasurer, respectively, of the Virginia Fox Hunters' Association.——Dr. Joseph N. Barney has been reelected city health officer of Fredericksburg and Dr. J. Lee Cooke and Dr. Ferris T. Cassiday have been elected members of the city board of health.——Dr. Horace G. Longaker has been appointed acting health officer of Newport News, following the resignation of Dr. Coleman B. Ransome.——Dr. Blanton L. Hillsman has been appointed surgeon of the police department of Richmond.——Dr. George H. Musgrave has been appointed health officer of Henrico County to succeed Dr. Bathurst B. Bagby. Dr. Musgrave for the past year has been health officer of Northampton County, with headquarters at Cape Charles.——Dr. Samuel Palmer Hileman, Rockbridge Baths, has been appointed on the staff of Catawba Sanatorium.

WISCONSIN

Diphtheria Closes Schools.—An epidemic of diphtheria in the southwestern part of Douglas County, especially in Dairyland, resulted in the closing of three schools recently.

University News.—Marquette University, Milwaukee, has opened a new college that will offer training for hospital executives, technicians, dietitians, medical social workers and other hospital specialists. The college work will lead to a bachelor's degree and the school for technicians to a certificate of efficiency.

Hospital News.—The board of trustees of the Dodgeville Lutheran Hospital, Dodgeville, announces that henceforth the institution will be known as the Bethesda Hospital of Dodgeville and that representation on the board will be open to all Protestant denominations.——The council of Milwaukee has authorized an addition to the South View Hospital which will cost $140,000.

CANADA

Personal.—Dr. Frederick G. Banting, Toronto, recently visited Brockville, Ont., where it is possible a research laboratory will be established in the near future.

Hospital News.—The Hospital for Incurables, Toronto, has completed fifty years' work. At the annual meeting of the board of directors it was stated that there is on hand $300,000 for the construction of new additions.——The Collingwood (Ont.) Marine Hospital recently paid off its entire mortgaged indebtedness through a surplus from operation this last year.

GENERAL

Society News.—At the recent meeting, in New York, of the American College of Surgeons, Dr. Charles H. Mayo, Rochester, Minn., was installed as president, and the following officers elected: president-elect, Dr. Rudolph Matas, New Orleans; first vice president, Dr. Eugene Hillhouse Pool, New York; second vice president, Dr. John Sinclair McEachern, Calgary, Alberta; treasurer, Dr. Albert J. Ochsner, Chicago.

Personal.—Dr. Sao-Ke Alfred Sze, Chinese minister to the United States, sailed, October 18, for Geneva, to attend the general opium conference called by the League of Nations. ——Dr. Arthur C. Bachmeyer, superintendent of the Cincinnati General Hospital, was elected president of the American Hospital Association at the annual convention in Buffalo, recently. Dr. Bachmeyer will take office a year hence, succeeding E. S. Gilmore, Chicago, who was installed president, October 10. —— Dr. William R. Redden, Boston, has been appointed assistant to James L. Fieser, vice chairman of the American Red Cross in charge of domestic relations, whom Dr. Redden will represent on questions relating to health.

Dr. George H. Simmons Honored in England.—Dr. George H. Simmons, who is temporarily in England, was entertained at a dinner at the Oriental Club in London, October 20, by Dr. Aldo Castellani, noted authority on tropical diseases. He also was the guest of honor at the annual council dinner of the British Medical Association, October 22, the other guests including Sir Arthur Robinson, first secretary of the ministry of health, and Sir St. Clair Thomson, president of the Royal Society of Medicine. November 14, Dr. Simmons, accompanied by Dr. Casey A. Wood and other members of the party, will sail for Ceylon. The party will remain in India until March, when it is expected to depart for the Malay States, China and Japan, returning to the United States by way of the Philippine Islands.

Alvarenga Prize.—The next award of the Alvarenga Prize of the College of Physicians of Philadelphia, amounting to about $300, will be made July 14, 1925, provided that an essay deemed by the committee to be worthy of the prize shall have been offered. Essays intended for competition may be on any subject in medicine but they cannot have been published and must be in English acceptable for publication without the necessity of editing by the committee, and must be received by the secretary of the college not later than May 1, 1925. The Alvarenga Prize for 1924 has been awarded to Dr. Gordon Cameron, Victoria, Australia. His subject was "Pancreatic Anomalies; their Morphology, Pathology and Clinical History." The secretary is John Girvin, 19 South Twenty-Second Street, Philadelphia.

Efficiency Competition in Navy Injures Health.—The surgeon of the scouting fleet, U. S. Navy, Commander Jacob Stepp, has submitted a report to the Navy Department, in which he asserts that the efficiency competition between various naval elements injures not only the morale but also the health of the personnel of the Navy. He said that:

> In a private or public enterprise no corporation can afford to juggle with the proper hygiene of its establishment. . . . A corporation can easily show by actual periods that the loss of production by the absence of skilled labor due to unnecessary illness far outbalances any cheapness of production concerned in the maintenance of those factors so vital to good health. This saving in health and working capacity of the individual has never been worked out in the Navy. . . . I question whether we are arriving at real economy in the maddening engineering competition, especially when we consider the deleterious effects on the health and morale of a selected personnel by permitting a reduction of the standard allowance of heat, ventilation, water and light.

Highway Fatalities in the United States.—The department of commerce announces that estimates indicate that during the year 1923 highway fatalities in the United States totaled 22,621, or an increase of 3,418 over the previous year. The 1923 death rate from these highway accidents was 20.4 per hundred thousand population as contrasted with 17.6 in 1922. This increase was largely due to the increase of 2,776 deaths in the estimated number of fatalities from automobile accidents. Even the 16,452 deaths charged against the automobile do not tell the whole story, as deaths resulting from collisions between automobiles and railroad trains and between automobiles and street cars are charged to the heavier vehicle. Two thousand fatalities from such collisions in 1923 is a conservative estimate for the United State. If this figure and the fatalities from motorcycle accidents be added to the figure for automobile accidents, the final 1923 toll from motor machines on highways becomes 18,788, or 83 per cent., of all highway fatalities.

National Committee for the Prevention of Blindness.—The annual business meeting of this committee will be held in the Russell Sage Foundation Building, New York, November 13. Heretofore, the annual conference of the committee has consisted of but one meeting. The conference will cover four days this year, beginning November 10. A year ago the National Committee for the Prevention of Blindness began an investigation of accidents to the eyes. The results show that the sight of at least 4,456 men, women and children in the United States has either been destroyed or seriously impaired by accidents during the last year; 85 per cent. of the victims are men and boys; 25 per cent. are children. Industrial accidents constitute the most serious single group. Next to children's play accidents, automobile accidents are the most serious nonindustrial source of eye injuries. Explosives and fireworks rank next. The eyes of 200 children were injured in the Fourth of July celebration.——The Department of Labor and Industry of the State of Pennsylvania reports the loss of 400 eyes during the first seven months of 1924 with compensation awards of $616,589.

Trachoma Among the Indians.—The campaign to eradicate trachoma among the Indians of the southwestern states will be continued through the winter by the Department of the Interior. Medical units organized by the Bureau of Indian Affairs and now holding clinics for the treatment of trachoma expect to cover the entire Navajo reservation before the end of fall. Every Indian on this reservation suffering with trachoma will have been examined and treated by physicians of these clinics when the work there is completed. The campaign will then be extended to Southern Pueblo, Leupp, Keams Canyon, San Carlos, Sacaton, Sells, Fort Mojave, Valentine, Mescalero, Supai and other Indian reservations in the southwest where winter will not interfere with the clinics. Reports received at the Indian Bureau show that up to October 1, 8,653 Indians have been examined of which 1,981 have been found with trachoma. Of this number 1,559 underwent trachoma operations, and 360 other eye operations were performed. The treatment of some of these patients will have to be repeated in the future, as in a number cures are not effected by the initial operation. The physicians in charge of the campaign recommend that small hospitals be provided on the southwestern Indian reservations, where operations may be performed and patients cared for until they recover.

FOREIGN

International Medical Congresses. — The International Radiology Congress convenes at London, June 30, 1925, and continues for four days. The address of the secretary is British Institute of Radiology, 32 Welbeck Street, London. ——The Fifth International Congress on the History of Medicine is to meet, July 22-27, 1925, with Dr. Charles Green Cumston presiding. The preliminary program can be obtained from the secretary, Dr. A. de Peyer, 20 rue Général Dufour, Geneva, after Dec. 1, 1924.

British Orthopedists Meet in Italy.—Our Italian exchanges describe the annual meeting of the British Orthopedic Association, which convened in September at the Rizzoli Institute at Bologna. The meetings were presided over by Sir Robert Jones, president of the society, and by Prof. V. Putti, director of the institute. There were sixty-five regular members of the British society in attendance besides the foreign correspondents, Haglund of Stockholm, Jansen of Leiden and Calvé of Berck. The party visited the new annex for heliotherapy at a higher altitude. Only a few weeks ago the British Public Hygiene Association held its annual meeting at Bordeaux.

Medical Society of London.—At the annual meeting of the Medical Society of London, October 13, the new president, Dr. Eustace M. Callender, gave an address on "Medical Memories." The society is now entering its one hundred and fifty-second year. The program for the winter includes a discussion of encephalitis lethargica, November 10, to be opened by Dr. Edward Farquhar Buzzard; November 19, the Lloyd Roberts lecture on "The Renaissance of Midwifery," by Dr. Herbert Spencer; November 21, a discussion on the treatment of senile gangrene, to be opened by Sir Anthony Bowlby; December 8, a discussion on the treatment of diabetes with insulin, to be opened by Dr. George Graham and Prof. Hugh Maclean; during February and March, 1925, the Lettsomian lectures by Sir Bernard H. Spilsbury on "Wounds and Other Injuries." The annual oration will be delivered in May by Sir William Hale White on "The Medical Career of John Keats."

Tribute to Tuffier.—A subscription has been opened by Marshal Joffre and other friends for a fund to present Professor Tuffier with his portrait. The presentation ceremonies

will be held at the time of the International Military Medical Congress next April. He was surgeon general of the French forces during the war, and the international congress is the outgrowth of the interallied conferences which he fostered. All persons subscribing 100 francs will receive a copy of the portrait. Contributors may address P. Masson, treasurer, 120 boulevard Saint-Germain, Paris. His opening address as president of the recent surgical congress at Paris is published in the *Presse médicale* just received. He made a plea for wisely guided experimental research, declaring that legislators drawing up new laws are experimenting on the living subject and that every progress is the result of experimenting on man.

Deaths in Other Countries

Dr. **James Albert Gibson,** formerly medical officer of health of the Isle of Wight; October 12, at King's College Hospital, London, aged 59.——Dr. **F. Fraipont,** professor of obstetrics, University of Liége, and one of the founders of the *Liége médical,* aged 68.——Dr. **Robert Gersuny,** Vienna, whose surgical methods and treatment of gastro-intestinal disease have been in general use. His eightieth birthday was celebrated, January 15.——Dr. **Bongartz,** Karlsruhe, a leader in the organization of the profession in Germany, aged 67.——Dr. **P. Neumann,** Naumburg, a writer on public health matters, aged 64.——Dr. **Florian Buol,** Davos, founder of the English Sanatorium at Davos, and first president of the Davos Institute for research on the physiology of high altitudes and on tuberculosis, which was due mainly to his initiative, aged 70.——Dr. **Masip y Valls,** Madrid, a writer on medical topics in the Spanish lay press and in medical journals, aged 73.——Dr. **José Llerena Carranza,** dean of the medical department of the University of El Salvador.

CORRECTION

University News.—THE JOURNAL, October 18, p. 1252, published the names of members of the cancer commission of the Harvard University as they had been reported. Those were the names of members of the staff of the cancer commission and not of the members of the commission. The members of the commission are: Drs. Henry P. Walcott, chairman; John Collins, Edward H. Bradford, Simeon Burt Wolbach, Ernest E. Tyzzer and Mr. M. Douglas Flattery. Prof. W. T. Bovie, a research fellow in biophysics, is also a member of the staff of the cancer commission.

Government Services

Federal Board of Hospitalization Established

Announcement is made of the establishment by executive order of the Federal Board of Hospitalization for the purpose of coordinating the hospitalization activities of the Medical Department of the Army, the Bureau of Medicine and Surgery of the Navy, the Public Health Service, St. Elizabeth's Hospital, the National Home for Disabled Volunteer Soldiers, the office of the Commissioner of Indian Affairs, and the Veterans' Bureau. The members of the board are Brig.-Gen. Frank T. Hines, director U. S. Veterans' Bureau, chairman; the Surgeon General of the Army; the Surgeon General of the Navy; the Surgeon General of the Public Health Service; the superintendent of St. Elizabeth's Hospital; the president, board of managers, National Home for Disabled Volunteer Soldiers, and the commissioner of Indian Affairs. The chief functions of the board will be to effect proper coordination in all government hospitalization activities to increase efficiency and service and promote economy in operation and maintenance. The board will act also in an advisory capacity to the President in matters pertaining to hospitalization.

Hospital Authorized

Pursuant to instructions of the Secretary of War, June 27, 1922, the organization of General Hospital, Organized Reserves, No. 114 (St. Luke's Hospital Unit, Chicago), has been authorized.

Officers Retired

Lieutenants Joy A. Omer and Horace E. Spruance, Medical Corps, U. S. Navy, have been retired for physical disability.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 20, 1924.

Commission on Lunacy

The opening of the Royal Commission on Lunacy Law and Administration and Mental Disorder has been described previously. At the resumed sitting, evidence was given by Sir Frederick J. Willis, chairman of the board of control. He advised that at the earliest possible time a medical officer of the visiting committee, skilled in the treatment of mental illness, should see each patient and should assign each to the psychopathic hospital or to the workhouse for proper treatment. The treatment of patients retained in workhouses should be supervised by a similar officer, and, when necessary, patients should be transferred to the psychopathic hospital. Similarly, suitable cases should be transferred to the workhouse from the psychopathic hospital from time to time. There was always an inclination on the part of visiting boards to discharge as many patients as they could, but in many instances they were unable to discharge patients, as proper supervision could not be exercised at their homes. The committee of a registered hospital could discharge a patient if it was not satisfied after considering the month-end report and visiting the patient that further detention was proper. The visitors of licensed houses could discharge any patient who appeared, after two visits, to be detained without sufficient cause. Three members of the visiting committee of a public psychopathic hospital could order the discharge of any patient whether recovered or not. The accommodation in this country for all classes of the insane is inadequate, and the position will be very serious in a short time, by the mere growth of population, not by any increase in insanity.

Dr. Bond, commissioner of the board, said that mechanical restraint was being used less and less.

Sir Claud Schuster, of the lord chancellor's department, was called to explain the statement he made, under examination, to the effect that he hoped that an insane person in confinement had not the right to demand a public inquiry as to whether he had recovered. He would regard the conferment of such a right as unfortunate for the following reasons: An insane person was detained not because he had committed an offense but because the state should (*a*) protect a person who might injure himself, if at large; (*b*) protect the public, and (*c*) cure or alleviate the mental disease, if possible. This was a matter unsuited, in most cases, for public inquiry or for forensic treatment. The mentally ill usually consider that they are wrongfully detained. If given the right to demand an inquiry, many of them would exercise it, and the excitement induced by a public hearing might retard, or possibly prevent, recovery or alleviation of the mental disease.

No More Admissions of Women Medical Students to St. Mary's Hospital

In a previous letter, the admission of women medical students to St. Mary's Hospital was discussed. The board of management has now decided with regret that it must discontinue the admission of women students to the medical school. The reason given for this action is that there has been so material a diminution in the number of women entering the medical profession that in the last two years only two and three women, respectively, have joined the school for the full five year curriculum. The problems facing any one of the numerous metropolitan schools are entirely different from those of a single school in a provincial center, and the board could not but recognize the possibility of future financial danger to the school. The board is glad to know

that for such numbers of women medical students as are now presenting themselves there is ample accommodation elsewhere in London. The policy of coeducation was adopted as an emergency measure in 1915, and was continued in 1919. With this record the board feels that it should be acquitted of any sympathy with such prejudice as may exist against medical coeducation, and its decision to abandon this policy has been reached entirely on financial considerations. It has been represented that there is a danger lest this decision be misconstrued as a verdict against the competence of the women trained at St. Mary's, and it is the chief concern of the board to emphasize the fact that no such feeling guided the action of any member of the board, lay or medical. On the contrary, it is unanimously recognized that the women who have received their medical education there have rendered the hospital as fine service, have won as many academic honors and are as well fitted to receive the confidence of the public as any generation of students that has passed through the school.

The Prosecution of Dr. Hadwen

In the prosecution of Dr. Hadwen on the charge of manslaughter, the government attempted to have the trial removed from Gloucester to London, because of the strong local partisan feeling. It may be remembered that Gloucester is a hotbed of antivaccinationists led by Dr. Hadwen. In the application for the removal of the case, it was stated that the verdict of manslaughter of the coroner's jury was obtained by a majority of 9 to 3, and that after the inquest the foreman shook hands with Dr. Hadwen and said: "I am sorry; of course, you know I did not agree." Dr. Hadwen is not only a physician with a large panel practice but a public man in Gloucester and has been a magistrate of the city for some years. A crowd assembled during the trial and after it followed Dr. Hadwen, singing: "For he's a jolly good fellow." It also made a hostile demonstration against the witnesses for the prosecution. During the recent epidemic of smallpox in Gloucester, the citizens were divided into two camps—the antivaccinationists, led by Hadwen, and the provaccinationists. For Dr. Hadwen it was submitted that he desired to be tried by his neighbors. A man who had a local reputation was as much entitled to the benefit of it as if a procession of witnesses were called to give evidence of it. The lord chief justice, in delivering judgment, said that there was no sufficient reason why Dr. Hadwen should be taken away from the jurisdiction of his neighbors to be tried by comparative strangers. If he had been satisfied that there was a real danger that collateral might influence the trial, he would have allowed the removal. But he was not satisfied that twelve persons could not be found in Gloucester who, whatever their views on other matters, would give a true verdict on the indictment.

Improved Health of London Children

The report of the health of the London children in the state schools for 1923 is encouraging. The health officer of the London County Council, Sir William Hamer, and his coadjutor, Dr. C. J. Thomas, deserve special congratulation on the increasing number of their young charges, who, being inspected and found to require treatment, now receive immediate attention. The medical inspection of school children used to be a depressing affair. Conditions requiring remedy were detected wholesale, but the subsequent treatment covered only a small percentage of cases. This had been changed, for no fewer than 218,000 children obtained treatment during 1923 for the conditions discovered on inspection. Patients with skin affections and with dental troubles, both fostered by neglect, have always formed a large proportion of the sick list of the schools; but there is a marked awakening among London children of the sense of personal hygiene. This is a great advance for which the parents as well as the schools' staffs deserve credit. The significance is that the inspection is close and personal, while the treatment is rendered prompt by the intelligent cooperation of the parents. At the dental centers, the number of candidates requiring treatment has fallen, in certain groups, to more than one-fifth the figure recorded ten years ago; and as the new spirit, now strong among the public, of desiring to help the work of medical inspection and treatment grows, even more general increasingly good results will make that spirit more keen.

PARIS

(From Our Regular Correspondent)

Oct. 17, 1924.

Reorganization of the Army Medical Corps

In previous letters, I have referred to the critical situation that has arisen in recent years in the army medical corps (The Journal, April 15, 1922, p. 1140). It has become increasingly difficult to fill vacancies in the ranks, for many young men have renounced the career of an army physician, owing to the inadequate compensation. In view of the dearth of army physicians, which was becoming more alarming every year, M. Justin Godart, at present minister of labor and of public health, who was undersecretary of state for the army medical service during the war, has introduced a bill in parliament which, if enacted into law, will improve the status of the army medical corps. Army physicians will no longer be considered merely as "adjoined to" the actual army officers. They will constitute "an army medical corps (corps de santé militaire) placed on an equal footing with the other components of the army." The officers of the army medical corps will thus have the rank, the rights, the authority and the prerogatives of officers of the line of the same grade. The army physicians will accordingly no longer be designated as "médecin aide-major," "médecin-major," "médecin-principal," etc., which titles differentiated them from the line officers. They will be called, according to their grade, "sous-lieutenant médecin," "lieutenant médecin," "capitaine médecin," "commandant médecin," "colonel médecin," "général médecin," or "général médecin inspecteur." In all sanitary formations, the officers of the army medical corps will exercise their authority over all the military personnel of a rank inferior to their own.

Furthermore, the officers of the army medical corps will be staff officers, in time of war as well as in time of peace. In this capacity, they will serve as agents of the commanding officer. They will contribute toward the elaboration of orders and will aid in their transmission. At the general headquarters of the army, the army medical corps will be represented by a "général médecin," who will be attached to the general command. He will be appointed during time of peace, and will organize and equip the service for time of war, and, with this purpose in view, he will act as technical adviser to the vice president of the superior war council. For time of war, provision is made in the proposed law for an inspector general of public health and epidemiology and an inspector general of the army surgical services. The health of the troops and the health of the civilian population being intimately associated, the officers of the army medical corps must keep in constant touch with the civilian health officers.

From the standpoint of financial betterment, the bill provides that officers of the army medical corps shall receive, over and above their salary, (1) an annual professional bonus equal to seven tenths of the salary of the budget, and (2) an annual bonus for technical skill equivalent to two tenths of the annual indemnity in compensation for their regular services to be paid to physicians, surgeons, specialists (oculists,

laryngologists, etc.) of the military hospitals, which posts shall be filled by competitive examinations. This extra compensation will improve their status, which has been unfavorable as compared with that of their civilian confrères.

Physicians and the Income Tax

The plans of the government with reference to the collection of internal revenue, or, more particularly, income tax, have awakened some opposition among the medical profession. The treasury department intends to require physicians to keep a book or set of books containing exact information with regard to their receipts and expenditures. In case the keeping of such books should prove too burdensome, it is proposed that physicians be taxed according to the external evidences of wealth. The physicians raise serious objections to the keeping of exact records of receipts and expenditures, especially in that it would involve the violation of the right of privileged communication. It has been stated that, while the latter objection might not be such a serious matter in the large cities, it is a very valid one in the smaller towns, in which nearly everybody is well known to every one and violations of secrecy might the more easily occur. The syndicate of the physicians of the department of the Seine has filed a protest with the finance committee of parliament against the introduction of the proposed system, which, moreover, would scarcely be efficacious, it was urged, since physicians desirous of defrauding the government could easily omit a portion of their calls or consultations, or could enter smaller amounts than they had actually received as fees.

As for taxation based on the external signs of wealth, it would seem very difficult to apply such a method to a profession in which, more than in other professions, an obligation may be said to rest on the persons concerned to "keep up appearances" and to make a better outward showing than their resources would otherwise justify. In order to secure and retain a clientele, a physician is almost compelled to engage quarters that present an air of comfort, which may induce him to make expenditures incommensurate with his financial means. For example, could the fact that a physician owned and operated an automobile be regarded by the treasury as an outward sign of wealth, when for many physicians and surgeons an automobile is merely a necessary working instrument?

Vital Statistics

The minister of labor has published the vital statistics for France during the second quarters of 1923 and 1924. During the second quarter of 1924, the marriages number 98,683 as compared with 105,458 during the corresponding quarter of 1923; divorces numbered 5,752 as against 6,299. Births were 190,315 in 1924; 199,758 in 1923. Stillbirths in 1924 were 8,142; in 1923, 8,708. Deaths of infants under 1 year numbered 16,004 in 1924; in 1923, 15,260. Deaths of persons over 1 year old were 146,617 in 1924, and 146,943 in 1923. The total number of deaths for 1924 was 162,621, as compared with 162,203 for 1923. The excess of births over deaths in 1924 was 27,694, as against 37,555 in 1923.

The Establishment of Regional Centers to Combat Cancer

In connection with the nation-wide crusade against cancer, it has been found advisable to establish regional centers at Bordeaux, Strasbourg, Lyons, Montpellier, Toulouse, Nantes, Rennes and Nancy. In the university cities, these centers take advantage of the technical skill and the scientific knowledge of professors in the medical schools. The organization of these regional centers comprises: a consultation service for the detection of cancer, for its early diagnosis, including a pathologic examination, a surgical service, a roentgenographic service for deep roentgenotherapy, and a radium therapeutic service. The administration of the hospitals or the faculté de médecine furnishes the quarters and the auxiliary personnel. The heavy expenditures for the apparatus required for deep roentgenotherapy and the high cost of radium supplies are covered by various appropriations and gifts — from the central government, the departments, the cities, private individuals, and other sources. The annual budgets of these regional centers are provided for in the same manner. Patients who are receiving free medical treatment in the departments are sent, with their traveling expenses paid, to the regional consultation center. Here they are examined, treated and, if necessary, are transferred to a hospital and the expenses charged to the chapter of the department concerned.

Physicians and the Daily Press

For some time, the daily journals have been making violent periodic attacks on the medical profession. An article of this character appeared recently in the *Courrier de Strasbourg*, whereupon the federation of medical "syndicates" of Alsace, which comprises almost all the physicians of that section and counts among its members all the directors of the university clinics of Strasbourg, took on itself the duty of addressing an energetic protest to that journal. The federation justly holds that the generality of physicians cannot be considered responsible for a few black sheep, who are generally despised by the medical profession as a whole.

It closes its protest with the following significant lines:

> The federation has a code of ethics infinitely more exacting than the public laws. This code treats of the duties of physicians toward patients, confrères and society in general. The federation has its tribunals, and it is entitled to express surprise that those who are so ready to point to alleged scandalous conduct on the part of physicians have never presented precise causes for complaint. . . . The federation would welcome aid that the press might give by refusing to accept the advertisements of certain physicians who are not its adherents, or of certain so-called institutes which, established at great expense by capitalists, are promoting their institutions in a commercial manner, which is condemned by all serious minded physicians as contrary to the interests of public health.

BUCHAREST

(From Our Regular Correspondent)

Oct. 15, 1924.

Alcoholism and Insanity

In the Medical Society of Oradea Mare, Roumania, Dr. Rusdea recently discussed the relation of alcohol to insanity. The risks of alcoholism should be taught in schools. We find that alcoholic insanity is increasing in the institutions of the country, and particularly in the district asylums. The gross alcoholic percentage in the male admissions of the three great Transylvanian asylums in the last five years averaged 31.9. In the rural and nonindustrial districts, the percentage is not nearly as great as this, leaving a much greater amount for the cities.

Chronic Cases in Hospital Wards

The last meeting of the Bucharest Interhospital Association discussed means of increasing hospital accommodations without the excessive expense of building new hospitals. Dr. Bradiceanu, director of a general hospital, said that in many instances persons seriously hurt in accidents could not be accommodated because beds were taken up by chronic cases. Many patients with lingering diseases, such as chronic phthisis, or incurable nervous affections, would be better off in their own homes or in the poor-law infirmaries, for it is obviously unfair to keep a single bed occupied for months in succession by a patient for whom little good can be done, when in the same space of time five or six acutely suffering ones might have been permanently cured by operation or otherwise. The whole question is of immense practical impor-

tance, both to the general public and to the governing bodies of the hospitals themselves. Chronic cases, on account of the stationary or slowly changing character of their physical signs, are particularly suitable for clinical examination by students, and a good teacher can always find some fresh points on which to dilate when the regular daily visit takes place. But in hospitals without a medical school, where the number of beds is more or less limited, an intelligent selection of cases for inpatient treatment must be made, due consideration being paid to the relative severity of the symptoms. All suffering, Bradiceanu said, chronic or acute, must be relieved, and how this can best be done with the greatest possible benefit to all is our daily problem.

A Case of Acetylsalicylic Acid Poisoning

Toxic symptoms following the use of acetylsalicylic acid have been reported, but a case observed by Dr. Suciu in Bucharest has a peculiar interest. Fifteen minutes after the ingestion of 1 gm., the patient's upper lip began to swell and deglutition became painful, while pulse and respiration were much increased. The swelling soon extended to the entire head and was not relieved by cold applications. Somewhat later, generalized urticaria made its appearance. The following day these symptoms disappeared. Most probably the condition was one of phenol (carbolic acid) poisoning from splitting up of the drug in the stomach, since the urine contained large amounts of phenol.

The Seizure of Tuberculous Meat

An official circular, recently sent to the councils of towns and cities and to medical officers of health, urges uniformity in the practice of meat inspection. The following principles were laid down by the International Health Conference some years ago: The entire carcass and all the organs may be seized when there is miliary tuberculosis of both lungs, when tuberculous lesions are present in the pleura and peritoneum, and when tuberculous lesions are present in the muscular system or in the lymphatic glands, embedded in or between the muscles, and when tuberculous lesions exist in any part of an emaciated carcass. If otherwise healthy, the carcass shall not be condemned, but every part of it containing tuberculous lesions shall be seized when the lesions are confined to the lungs and the thoracic lymphatic glands, or when the lesions are confined to the liver or to the pharyngeal lymphatic glands or any combination of the foregoing, but are collectively small in extent.

Is Copper Sulphate a Poison?

A recent police court prosecution resulted in the conviction and fine of a grocer for selling peas and preserved pickles adulterated with copper sulphate to the extent in the peas of 0.2 gm. (about 4 grains) to the pound and in the pickles of 0.16 gm. (about 3 grains) to the pound. The Roumanian food hygiene law of 1899 recommends that in no case should more than 0.03 (one-half grain) of metallic copper be permissible to the pound of preserved vegetables. The prosecuting medical officer of health admitted that he knew of no case in which injury had resulted from coppered pickles. He stated that the ordinary dose of copper sulphate as an astringent was from 0.03 to 0.1 gm. (from one-half grain to 2 grains). Any one, therefore, taking a pound of the peas or pickles in question would swallow double the medicinal dose. Copper phyllocyanate was formed when copper was added in small quantities to preserves, a substance that could be harmful even in minute quantities. That fact, apart from the question of adulteration, suggests that copper should be used with extreme caution as a medicinal agent. Nowadays its therapeutic use is extremely limited, the health officer argued, as of late years other remedial methods and nontoxic astringent drugs have been introduced into practice.

BELGIUM

(From Our Regular Correspondent)

Oct. 14, 1924.

Psychiatry in Our Prisons

It is often desirable to subject various prisoners to a medical or psychiatric examination, and sometimes necessary to prescribe asylum treatment for prisoners found to be mentally ill. For this purpose psychiatric annexes have been created in our prisons. These consist of a large observation room with from eight to twelve beds, and a number of isolation cells for excited, unruly patients. Sometimes there is also a smaller open ward with beds for epileptics. The psychiatric observation ward, the arrangement of which is the same as that of modern asylums, opens into a yard or court. There is also a hydrotherapeutic department, and there are private rooms for the physician and for the nurses. The alienist or the prison physician can thus make expert observations.

At the congress of French-speaking neurologists, Dr. Vervaeck gave an interesting account of the activities of these psychiatric annexes, in which 608 prisoners have been observed during the last three years. Among these, the constitutional psychopaths and the feebleminded predominated; 250 subjects, more than 40 per cent., were of the latter class. The number of truly mental patients, which includes seven pronounced cases of so-called penitentiary psychosis, constituted only 17 per cent. of the inmates of the annexes. The group of neurotics, mostly constitutional or traumatic epileptics, comprised 21 per cent. of the cases, among whom there was a considerable number of hystero-epileptics, concerning whom it was equally difficult to decide on their criminal responsibility and their treatment in prison. Of interest, too, was the group of accused persons who were subjected to a medicolegal examination and who were recognized as being of sound mind (5.4 per cent.). There was also a group of about thirty subjects who were detained for a time in the psychiatric annex owing to one or more attempts or threats to commit suicide (5 per cent.).

Instruction in Dentistry

The proposal of the government to modify instruction in and control of dentistry as a medical specialty, as mentioned in a previous letter, gave rise to a long discussion at two recent protracted meetings of the Academy of Medicine. The minister, who was entertaining the plan of creating a special diploma for "licentiates in dental science," had requested the opinion of the Haute Assemblée Médicale. The latter definitely accepted the plan of the government, but suggested certain modifications. The conditions demanded were:

1. The securing of a diploma of "candidate in medicine" identical with that of future physicians.

2. A requirement of two years of study leading to the title of "licentiate in dental science." Such examination should comprise: general pathology, pathologic anatomy, the elements of pharmacology and pharmacodynamics, bacteriology including the elements of medical parasitology (course of the Faculté de médecine), buccal pathology and therapeutics and clinical stomatology, operative dentistry and orthodontia, and buccal prosthesis, including dental metallurgy.

3. Doctors of medicine may take the examination for "licentiate in dental science" after a year of special study.

An additional note shows the care taken by the academy to reserve to physicians the privilege of practicing any specialty they desire. Their claims on this right are expressed very explicitly in these words: "To avoid all confusion and any error of interpretation, it should be understood that doctors of medicine, surgery and obstetrics are authorized, without other qualification or diploma, to practice the dental art just as they are entitled to practice any other medical specialty. They may not, however, assume the title of 'licentiate in

dental science' until they have obtained the required credits and passed the stipulated examination."

Pharmaceutic Specialties

Addressing the Academy of Medicine recently, Dr. Henrijean expressed solicitude over the constant increase in the number of pharmaceutic products being put on the market with a more or less scientific presentation of their claims to attention. The question is one to cause anxiety not only from the medical but also from the social point of view. Organizations exercising a general controlling influence over the legitimate trade in new and nonofficial remedies exist in America, Australia, Holland and Esthonia. Any attempt to introduce a similar control in Belgium would arouse furious opposition on the part of those financially interested. Opposition, however, could come only from those who exploit nostrums without value and who therefore fear the light. There are a great many drugs and remedies furnished us by pharmaceutical houses that we could not do without. There are also others. The purpose of such organizations is to sift the chaff from the grain. Henrijean warned that if Belgium did not watch out it would become the dumping ground of the panaceas, balms and snakebite remedies from all the world. He therefore put squarely up to the academy the question whether the time had not arrived to ask the authorities that some controlling organization be established, for example, a commission composed of competent scientists, in order that an endeavor may be made to erect a dike against the dangerous flood that threatens us. In consequence of this ardent appeal, the academy has appointed a commission to examine into the question of the necessary measures to adopt in order properly to control the trade in pharmaceutic specialties.

Death of Professor Van Duyse

Professor Van Duyse of Ghent, who was the leading spirit of the Société belge d'ophtalmologie, died suddenly during a meeting of the society. Professor Van Duyse, owing to his works on embryology, pathologic anatomy and ophthalmology, had become one of the most eminent figures in the Belgian scientific world.

The Contagiousness of Epidemic Encephalitis During Its Parkinsonian Stage

At the congress of French-speaking neurologists, M. Guillain called attention to the fact that encephalitis should be regarded as contagious not only during the first acute stage but also during the parkinsonian stage. He cited a case in which contagion had taken place through contact, and it seems probable that the virus of encephalitis may exist in the increased salivation occurring in parkinsonian patients.

Aphasia

At the twenty-eighth congress of French-speaking neurologists, Dr. Froment presented a paper on disorders of speech which was much appreciated and widely discussed. The author's conception of aphonia, especially, awakened great interest. When we are dealing with aphasia of expression of motor origin or with aphasia of comprehension of sensory origin, it is always the auditory and visual word image that it affected. But, whereas in sensory aphasia there is amnesia, with disorders of recognition, in aphasia of expression of motor origin the disturbance rarely involves anything but the loss of power of utterance. The inability to call up the visual word image occasions agraphia, and the loss of power to utter the auditory word image gives rise to the inability to speak termed "motor aphasia." Between motor aphasia of the Broca type, on the one hand, and amnesic aphasia and amnesia of normal persons, on the other hand, there are only differences of degree. It is always because the word image cannot be called up that it is impossible to utter it. If, when the refractory word is whispered to the subject suffering from motor aphasia, he is still unable to utter it, it is because the verbal memory is impaired to such an extent that the sounds when heard are again immediately forgotten.

The Adjudication of Difficulties Between Physicians and the Mutual Health Insurance Societies

On several occasions, I have mentioned the differences that have arisen, in recent years, between physicians and the mutual aid societies that have organized medical services. Echoes of these clashes have been heard even within the walls of parliament. In consequence, at the instance of M. Tschoffen, minister of industry and labor, a royal order has been issued looking toward the establishment of a commission whose function it will be to present proposals with a view to establishing better relations between the mutual aid societies and the members of the medical profession in Belgium. This commission will comprise, in addition to representatives of the ministry of industry and labor, delegates from the mutual aid associations and the medical profession.

BERLIN

(From Our Regular Correspondent)

Oct. 11, 1924.

The Birth Rate of Germany, 1920-1923

Oberregierungsrat E. Roesle of Berlin compares the birth rate of Germany for 1917, which was 13.9 living births per thousand population, and the lowest ever recorded, with the rate for 1913, which was 27.5. The birth rate of Austria, according to its present territorial limits, reached the same minimum in the same year. Belgium and France, with birth rates of 12.9 and 9.3, respectively, in 1916, alone of all European countries showed lower values. After the war, the birth rate increased in all European countries. This increase was not so marked as after former wars, nor did it keep up so long. In few European countries has the minimal antebellum birth rate been exceeded since the war; namely, in 1920, in the Netherlands, England, Scotland, Sweden, Norway, Italy, Belgium and France, and in 1921 in Spain. The birth rate for Germany in 1920, which was 25.9, almost reached the prewar minimum for 1914, which was 26.8. Since 1920, the birth rate in all European countries has again decreased. In Czechoslovakia the retrograde movement did not begin until 1922.

It is apparent, therefore, that the recent decrease in the birth rate is of international scope, as was the fall in the rate just previous to the outbreak of the Great War. The falling of the birth rate after the war, in spite of the unusual and long continued increase in the number of marriages in many European countries, would indicate that the decrease after the war was due to more powerful factors than that before the war.

Germany was among the countries showing the greatest increase in the number of marriages after the war. The maximum attained was 14.5 marriages per thousand of population for the year 1920, which figure was excelled only by that of France for the same year (15.9) and that of Bulgaria, Roumania and Hungary for 1919. In contrast with these countries, however, the increase in the number of marriages contracted in Germany extended over a longer period.

In spite of these favorable conditions, which are ascribable partly to demographic factors (the large percentage of the population entering the marriageble age) and partly to economic factors (the least unemployment in the years 1921 and 1922), since 1921 there has been a continued decrease in the birth rate. The fall up to 1923 has been so rapid that now Germany is among the countries with low birth rates.

Whereas in Sweden, Belgium, France and Switzerland, whose birth rates, as early as 1920, were the lowest in

Europe, the further decline of these rates was accomplished gradually, Germany and England quickly reached the minimum of European birth rates. In Germany, the decrease, which began in 1921, was at first confined to the cities. The scarcity of dwellings, the decline of the mark and the increased cost of living naturally exerted an entirely different psychologic effect on the consuming city population than on the producing rural population. Then the birth rate for the rural population, also, began to drop. The percentage of decrease in the provinces in comparison with the decline in the cities was very small up to 1923.

According to still incomplete returns, the total number of births (excluding stillbirths) for all Germany in 1923 was only 1,291,000, which is about the same as the average number of births yearly during the quinquennium 1856-1860. The population at that time occupying the territory of the future German empire was only 36,900,000, or 2,600,000 less than the population of France according to its present territorial limits, in which, in 1923, only 761,861 living births were recorded.

In contrast with Germany, England's rural population showed a greater decline in the birth rate after the war than did the cities. The birth rate of towns with less than 20,000 inhabitants was always less, in the period 1920-1923, than in the larger cities. The birth rate in English cities and provinces has declined uniformly during the last four years. Since the severe economic crises, which developed in England with the beginning of 1921, protracted strikes and increasing unemployment have damaged the cities and the rural regions in equal proportions, it is readily understood why the birth rate for the country population, which is usually lower than that of the cities, has decreased just as much as that of the city population. Another factor exerting a depressing influence on the birth rate in England is the marked and continued fall in infant mortality; for the infant mortality rate for all England in 1923 had dropped to 6.9 and to 6.4 in towns of less than 20,000 inhabitants, on the basis of 100 living births of the same year, whereas the infant mortality rate for Germany had remained at the minimal value reached after the war and ranged in the period 1920-1923 between 13.0 and 13.4, and thus could have had no determining influence on the steadily decreasing birth rate.

The differences in the character of the decline of the birth rates in Germany and in England becomes still more marked if we examine the rates of the largest cities in the two countries. Whereas in Germany the large cities show the lowest birth rate of all the cities, in England the cities with more than 50,000 inhabitants have a higher birth rate than the smaller cities and the rural communities. The birth rate of Berlin for 1923 was 9.4, which was less than half that of London (20.2). Roesle points out that such marked differences indicate that the causes of the decline in the birth rate in the two countries must be quite unlike. The scarcity of dwellings and the fear caused by the financial depression have had a more intense effect on the large cities of Germany, and especially Berlin, than on the rural regions. The birth rate reflects the manifestations of the economic life of the country, but in this instance the reaction was so great that the birth rate seemed bent on dropping as fast as or faster than the German mark. The birth rate for the city of Berlin for the year 1923—like the German mark—reached a hitherto unknown minimal value, which was not only lower than the death rate but lower, also, than the marriage rate. Such unnatural conditions can last only so long as their causes continue to operate, so that, with the elimination of these causes, an increase of the birth rate, as during the first years after the war, may be expected. To be sure, the return to normal will be gradual but will doubtless keep pace with the improvement in the German economic situation.

Marriages

JULIUS AUGUST HEYMAN, Wichita Falls, Texas, to Miss Alzada Knickerbocker of Dallas, September 18.

DANIEL FRANK MILAM, Chicago, to Miss Mary Louise Wilson of Winchester, Ky., October 25.

B. RUBENSTEIN, Dallas, Texas, to Miss Margaret Ida Winkelmann of Brenham, October 4.

PHEBE LORENA PEARSALL, Moline, Ill., to Mr. Conrad C. Block of Aurora, Minn., October 28.

HILDEGARDE CATHERINE GERMANN to Mr. Frank Sinnock, both of Quincy, Ill., November 1.

TAYLOR W. FUNKHOUSER to Miss Hilda Funk, both of Danville, Ill., at Chicago, recently.

LEON G. BRACKETT to Miss Bessie A. Jacobs, both of Waukegan, Ill., October 18.

FRANKLIN G. WESTCOTT, LaSalle, Ill., to Miss Pearl Searle of Indianapolis, August 23.

DEAN FIELD STANLEY, Decatur, Ill., to Miss Beatrice Weyh of Minneapolis, October 4.

MAURICE SALTZMAN to Miss Sophie Aaron, both of Philadelphia, September 14.

Deaths

Charles Edwin Perkins ✠ New York; Medical Department of Columbia College, New York, 1888; clinical professor of otology, University and Bellevue Hospital Medical College, New York; professor of otology, New York School of Ophthalmology and Otology; member of the American Otological Society and the New York Otological Society; served in the M. C., U. S. Army, with the rank of captain, in France, during the World War; on the staffs of the New York Eye, Ear and Throat Infirmary, St. Luke's Hospital and the Bellevue Hospital, where he died, October 23, of heart disease, aged 57.

Isaac Daniel Webster, San Diego, Calif.; University of Pennsylvania School of Medicine, Philadelphia, 1890; member of the California Medical Association; past president of the San Diego County Medical Society; for six years member of the school board; at one time county physician; formerly on the staff of the San Diego County Hospital; aged 58; died, October 6.

Henry James Bogardus ✠ Jersey City, N. J.; Medical Department of the University of the City of New York, 1884; on the staffs of the Jersey City and Christ hospitals, Jersey City; Bayonne (N. J.) Hospital and the New York Orthopedic Hospital; aged 66; died, October 21, of heart disease.

Andrew Jackson Swezey, Huntington, W. Va.; College of Physicians and Surgeons, Keokuk, Iowa, 1897; member of the West Virginia State Medical Association; served in the M. C., U. S. Army, with the rank of captain, during the World War; aged 55; died, October 15, of carcinoma of the pancreas.

David Richard Lewis, Whitestone, N. Y.; Long Island College Hospital, Brooklyn, 1893; member of the Medical Society of the State of New York, and the Brooklyn Neurological Society; for thirty-one years physician in charge of the Harrison Sanitarium, where he died, October 15, aged 60.

Robert Stevenson, Cincinnati; Medical College of Ohio, Cincinnati, 1907; member of the Ohio State Medical Association; and the American Academy of Ophthalmology and Oto-Laryngology; on the staffs of the Jewish, Christ and Children's hospitals; aged 42; died, October 18.

Samuel David Acuff ✠ Knoxville, Tenn.; University of Louisville (Ky.) School of Medicine, 1898; formerly secretary, registrar, dean and professor of medicine at the Lincoln Memorial University Medical Department, Knoxville; aged 63; died, October 7, following a long illness.

James Bishop, New York; Medical Department of Columbia College, New York, 1895; member of the Medical Soicety of the State of New York; formerly on the staff of the Manhattan Eye, Ear and Throat Hospital; aged 54; died, October 15, at Dunfermline, Scotland, of pneumonia.

John James Silbaugh, Lancaster, Ohio; Bellevue Hospital Medical College, New York, 1886; member of the Ohio State Medical Association; served in the M. C., U. S. Army, with

the rank of captain, during the World War; aged 61; died, October 15, of uremia.

Thomas Newton Greer, Peterboro, Ont., Canada; University of Toronto Faculty of Medicine, 1880; served with the Canadian Army Medical Corps, with the rank of captain, during the World War; formerly county coroner; aged 65; died, July 23.

Charles Arnold Ritchie, Winnipeg, Man., Canada; McGill University Faculty of Medicine, Montreal, Que., 1906; L.R.C.P., Edinburgh, L.R.C.S., Edinburgh, L.F.P.S., Glasgow, 1907; aged 44; died suddenly, August 11, at White Bear Lake, Minn.

John Rogers Clark, San Francisco; Medical Department of Columbia College, New York, 1895; member of the California Medical Association; Spanish-American War veteran; aged 58; died, October 12, at St. Francis Hospital, of heart disease.

Joseph Wolfson ✙ Jersey City, N. J.; Bellevue Hospital Medical College, 1883; for thirty-four years city physician; at one time on the staff of the Bellevue Hospital, New York; aged 64; died, September 28, following a long illness.

John Alexander Grant, Malone, N. Y.; Medical Department of the University of the City of New York, 1887; past president of the Franklin County Medical Society; aged 62; died, October 15, at Ogdensburg, following a long illness.

Henry Boxer ✙ New York; University of Louisville (Ky.) School of Medicine, 1910; served in the M. C., U. S. Army, with the rank of captain, during the World War; aged 37; died suddenly, October 22, of heart disease.

James A. Goslin, Lomita, Calif.; St. Louis (Mo.) Medical College, 1866; Bellevue Hospital Medical College, New York, 1871; formerly a practitioner in Missouri; aged 84; died, October 16, of cerebral hemorrhage.

Henry Albert Herman, Sandersville, Ga.; Atlanta College of Physicians and Surgeons, 1903; member of the Medical Association of Georgia; aged 54; died, October 14, at a hospital in Atlanta, of chronic nephritis.

John Alexander Monahan ✙ Minneapolis; Medical Department Hamline University, Minneapolis, 1902; formerly a druggist; consulting surgeon to the Asbury and St. Barnabas hospitals; aged 59; died, October 12.

Fred A. Black, Garland, Utah; Western Reserve University School of Medicine, Cleveland, 1921; member of the Utah State Medical Association; aged 31; died, September 15, at Salt Lake City, of adenosarcoma.

William M. Crockett, Donelson, Tenn.; University of Tennessee College of Medicine, Memphis, 1898; aged 53; died, October 10, at St. Thomas Hospital, Nashville, following an operation for gallstones.

Mathias Coad, Williamston, Mich.; Berkshire Medical College, Pittsfield, Mass., 1865; Civil War veteran; for more than forty years member of the board of education; aged 83; died, October 9, at Lansing.

Irene Gruna Dymow, New York; University of Zurich, Switzerland, 1911; member of the board of health; on the staff of Mount Sinai Hospital, where she died, October 23, following an operation, aged 38.

Thomas W. Kay, Scranton, Pa.; College of Physicians and Surgeons, Baltimore, 1879; member of the Medical Society of the State of Pennsylvania; aged 66; died suddenly, October 3, of heart disease.

Matt Ransom Stephenson, Seaboard, N. C.; University of Maryland School of Medicine, Baltimore, 1881; chairman of the county board of health; aged 65; died, October 23, of angina pectoris.

Anthony Joseph Montz, New Orleans; Medical Department of the Tulane University of Louisiana, New Orleans, 1900; aged 44; died, October 17, at the Charity Hospital, of cerebral hemorrhage.

Francis Marion Starr Bowers, Braddock, Pa.; University of Pittsburgh School of Medicine, 1915; member of the Medical Society of the State of Pennsylvania; aged 35; died, October 14.

Robert Atwood Whitford, National Soldiers Home, Me.; Medical School of Harvard University, Boston, 1911; aged 50; died, September 4, at Waltham, Mass., of angina pectoris.

William Harlon Baker, Pueblo, Colo.; Gross Medical College, Denver, 1891; member of the Colorado State Medical Society; aged 69; died, October 12, of cerebral hemorrhage.

James A. Watson ✙ Detroit; University of Michigan Medical School, Ann Arbor, 1883; formerly mayor of Brown City, Mich.; died suddenly, October 6, of coronary thrombosis.

William Henry Brothers, Shoal Lake, Man., Canada; University of Manitoba Faculty of Medicine, Winnipeg, 1897; aged 54; died suddenly, August 3, of angina pectoris.

Samuel E. Snodgress, Desdemona, Texas; Missouri Medical College, St. Louis, 1879; aged 72; died, October 16, at a sanatorium in Fort Worth, following an operation.

Romeo Adelbert Harrington ✙ Nashville, Tenn.; University of Tennessee College of Medicine, Memphis, 1882; aged 67; died, October 11, of perforated gastric ulcer.

Charlton Reading Gulick, Bradley Beach, N. J.; Bellevue Hospital Medical College, New York, 1882; aged 67; died, October 23, at St. Luke's Hospital, New York.

James Voorhees Freeman ✙ Jacksonville, Fla.; Columbia University College of Physicians and Surgeons, New York, 1904; aged 47; died, October 6, of phlebitis.

Seward White, Olin, Iowa; Northwestern University Medical School, Chicago, 1909; aged 42; died, October 13, of injuries received in an automobile accident.

John W. Reese, Perris, Calif.; State University of Iowa College of Medicine, Iowa City, 1870; formerly health officer of Los Angeles; aged 80; died, October 18.

Samuel W. Weaver, Hubbard, Ore.; College of Physicians and Surgeons, Baltimore, 1882; bank president; aged 71; died suddenly, October 10, of heart disease.

Ernst H. S. McLean, Nakusp, B. C., Canada; Queen's University Faculty of Medicine, Kingston, Ont., 1891; aged 54; died, July 18, of heart disease.

Butler K. H. Kreps, Columbia, S. C.; Medical College of the State of South Carolina, Charleston, 1882; aged 69; died, October 12, of heart disease.

Wesley Calvin Stick ✙ Hanover, Pa.; Washington University School of Medicine, Baltimore, 1874; aged 69; died, October 17, of endocarditis.

Lawrence Reynolds ✙ Horton, Kan.; State University of Iowa College of Medicine, Iowa City, 1884; aged 64; died, October 7, of typhoid fever.

Vernon Harcourt Chipman Mose, Paradise, Nova Scotia, Canada; Medical School of Harvard University, Boston, 1903; aged 46; died, July 8.

Oliver Fara Brown, Lexington, Ky.; Bellevue Hospital Medical College, New York, 1884; aged 68; died, October 15, following a long illness.

Henry Slaughter Bell, Portland, Ore.; Bellevue Hospital Medical College, New York, 1878; aged 76; died, October 11, of cerebral hemorrhage.

William Lawrence Hogeboom ✙ Troy, N. Y.; Medical Department of the University of the City of New York, 1893; aged 67; died, July 30.

James F. Brown, Riverside, Calif.; Pulte Medical College, Cincinnati, 1875; aged 75; was found dead in bed, October 10, of heart disease.

Walter Clement Kenney ✙ Winchendon, Mass.; Tufts College Medical School, Boston, 1904; aged 45; died, October 14, of angina pectoris.

James Montfort Schley, New York; Savannah (Ga.) Medical College, 1872; aged 74; died, October 22, of cardiorenal disease.

Joseph Jinkins Watson ✙ Columbia, S. C.; Medical College of the State of South Carolina, 1896; aged 52; died, October 15.

G. H. Stephens, Personville, Texas (licensed, Texas, under the Act of 1907); aged 55; died, September 3, of pneumonia.

Johannes Meyer, Brooklyn; University of Berlin, Germany, 1880; aged 66; died suddenly, October 21, of heart disease.

Lacy B. Lovett ✙ Sparks, Ga.; Atlanta Medical College, 1895; aged 52; died, October 10, following a long illness.

Adolph M. Brandstein, Brooklyn; University of Moscow, Russia, 1887; died suddenly, October 17, of heart disease.

James Steadman Haley, Napoleon, Ohio; Jefferson Medical College of Philadelphia, 1872; aged 72; died in October.

Abraham Dilworth Stapleford, Cincinnati; Miami Medical College, Cincinnati, 1883; aged 70; died, October 15.

John T. Cheairs, Tillar, Ark.; Hospital College of Medicine, Louisville, Ky., 1891; aged 75; died, October 11.

Reuben M. Root, Buffalo; University of Buffalo Department of Medicine, 1883; aged 70; died, October 12.

Remy J. Stoffel, St. Louis Medical College, 1880; aged 72; died, October 8, of senility.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

AOLAN NOT ACCEPTED FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

Aolan is manufactured by a German firm for which the H. A. Metz Laboratories, Inc., New York, are American agents. When the report which follows was sent to the H. A. Metz Laboratories, Inc., the firm sent a detailed reply. The Council after due consideration of this reply decided that the rejection of Aolan should be allowed to stand. The H. A. Metz Laboratories, Inc., does not hold itself responsible for the many and varied claims made for nonspecific protein therapy and the uses of Aolan in connection therewith which have appeared in print either in this country or abroad. Although the claims advanced by the American agents for Aolan are relatively moderate, they are still unacceptable because they are unsupported by controlled clinical evidence from reputable observers. W. A. Puckner, Secretary.

Aolan is prepared from milk freed from fat, and is claimed to be a germ-free and toxin-free solution of lactalbumin. It is manufactured by P. Beiersdorf & Co., G. m. b. H., Hamburg, Germany, for the H. A. Metz Laboratories, Inc., New York. Aolan is recommended for intramuscular and intravenous injection in local and generalized infections, in acute and chronic staphylococcus diseases of the skin, in bubos, in gonorrheal complications, erysipelas, trichophytosis and in carbuncles. The advertising for Aolan contains the following reports: joint contractures of months' standing with fistulous tracts due to tuberculosis alleged to be relieved by 50 injections of Aolan; secondary anemias said to have improved with increase in hemoglobin and red cells; adnexal tumors of gonorrheal origin, 89 of 130 cases claimed to have been cured and 37 to have improved under Aolan *and* rest and hot douches. There are claimed also: menstrual irregularities corrected; breast milk increased; tetanus of the new born cured by antitetanus serum and Aolan; of value in the treatment of soft chancres, gingivitis and stomatitis.

The Council declared Aolan inadmissible to New and Nonofficial Remedies because it is marketed under unwarranted, therapeutic claims.

POLLANTIN NOT ACCEPTED FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report. W. A. Puckner, Secretary.

Pollantin Liquid, Pollantin Ointment and Pollantin Powder are hay-fever "remedies," marketed by Fritzsche Bros., Inc., New York. According to the circular which accompanies the trade packages, Pollantin is an "Antitoxic Serum for both varieties of Hay-fever, viz.: Rose or June cold as well as Autumnal Catarrh, Fall Hay-fever, etc." It is stated to be prepared under supervision of the discoverer, Professor Dr. Dunbar, by Schimmel & Co., Miltitz near Leipzig, Germany.

Formerly, two forms of Pollantin—Fall Pollantin and Spring Pollantin—were supplied. According to Fritzsche Bros., Inc., however, these terms have been discontinued since 1914, and "as a result of several years' research and conclusive trials a single serum is now placed on the market combining the therapeutic efficiency for the treatment of Hay-fever in its various phases. . . ."

According to the patent (U. S. Patent 745,333) issued in 1903 to William Phillips Dunbar, a serum is made by incorporating pollen grains of plants in the blood of animals, drawing a quantity of blood from the same and separating the serum from the clotted blood. When inquiry was made of Fritzsche Bros., Inc., in regard to the identity of the pollens that were used in the preparation of this "Hay-fever antitoxin," the firm replied: "The list of pollen from which Pollantin is prepared comprises the pollen of various species of ragweed and goldenrod in addition to those of several graminæ pollen, such as rye, Indian corn, meadow foxtail, timothy grass, etc."

Pollantin preparations were in vogue some years ago and Fall Pollantin, prepared from ragweed, was at one time described in New and Nonofficial Remedies (Reports of the Council on Pharmacy and Chemistry, 1916, p. 69). An enormous amount of work has been published to controvert the original conception of Dunbar on the value of the serum which he prepared for therapeutic purposes. While the patent on the product expired in 1920 and its manufacture is open to all, no American firm appears to have undertaken its commercial production. The principle on which Pollantin was founded has been found to be unsound and there is no acceptable evidence to show that hay-fever is due to a toxin in pollens or that symptoms may be combatted by the use of any antiserum obtained from animals.

The Council finds Pollantin Liquid, Pollantin Ointment and Pollantin Powder inadmissible because the therapeutic claims are unwarranted, and it appears to be an unscientific and useless article.

Correspondence

IRRADIATION OF THE TONSILS

To the Editor:—I have read with interest the article by Dr. W. Warner Watkins, together with the discussion (The Journal, October 25, p. 1305). On the invitation of our chairman, Dr. Joseph C. Beck, I read a paper on "The Tonsil Question up to Date" before the Middle Section of the American Laryngological, Rhinological and Otological Society, Feb. 22, 1921, in Chicago. Only two papers were presented to that meeting, one in the morning and mine in the afternoon. The attendance resembled an annual session of the entire society. The discussion of the paper was voluminous. The consensus was that from three to five times too many tonsils are being removed. The society is composed of real laryngologists and otologists.

While Dr. Watkins indicts laryngologists in general for the promiscuous removal of tonsils in the face of apparently proved successful conservative treatment by radiation, the indictment must not therefore stand against the earnest, real live laryngologists, members of the society mentioned.

The conclusions to which Dr. Watkins arrives in his article are apparently sane and worthy of emulation by all the profession performing tonsillectomies. These conclusions were unanimously supported by all the discussants of his paper.

Some tonsils must be enucleated, as he admits. Since the roentgenologist has demonstrated to our satisfaction that the class of tonsils to which he refers are better irradiated rather than enucleated, it behooves the profession in general to discriminate carefully between patients needing tonsillectomy and those needing irradiation. In other words, a careful, complete examination of each patient is an essential prerequisite to any advice.

George F. Keiper, M.D., Lafayette, Ind.

To the Editor:—Dr. W. W. Watkins, in an article on the "Pathologic Basis for Roentgen-Ray Treatment of Tonsil Disease" (The Journal, October 25), strives to leave the impression that the men who have been most interested in the tonsil problems, the laryngologists, have been making "frantic" efforts to prevent the treatment of tonsil disease by irradiation, the inference being that these men are not interested in the curing of tonsil disease except by operative measures.

Such inferences are as unjust as they are untrue. Laryngologists are properly interested in protecting the field of

medicine for which they are sponsors from abuse and improper exploitation. Serious work has been going on in many quarters to evaluate the proposal to treat tonsil disease by irradiation. Final judgment is still being withheld; but because irradiation has apparently failed to check recurring attacks of acute tonsillitis as well as to eliminate evidences of chronic infection, and because the much shrunken tonsil, which is the end-result claimed for irradiation, is often found clinically to be as great a menace as is the enlarged tonsil, laryngologists have not as yet been able to subscribe to this method of treating tonsils as enthusiastically as do Dr. Watkins and apparently some other radiologists. The irradiation of lymphoid hypertrophies scattered over the posterior wall of the pharynx which persist after tonsillectomy is quite a different matter. Unfortunately, theoretical considerations such as those presented by Dr. Watkins are not sufficient to establish the facts regarding such treatment. The statement made by the author and repeated by some of the radiologists who discuss his paper, that many laryngologists were anxious to have their families treated by this method but were quite unwilling that their patients should have the benefit of this treatment, is unworthy of men who are seriously representing radiology in this country. Laryngologists do not represent a class of inferior professional men who are lacking so completely in the ideals which every true physician cherishes. The moment it can be shown that irradiation treatment of tonsils is safe and at the same time a more efficient method of curing tonsil disease than by removal, the laryngologists will be as quick to take advantage of this innovation as they are of any method that has been proved.

GEORGE E. SHAMBAUGH, M.D., Chicago.

DANGERS OF THE IODIN TREATMENT IN EXOPHTHALMIC GOITER

To the Editor:—In the editorial entitled "A Fortunate Therapeutic Error" (THE JOURNAL, October 18, p. 1249), you refer to the beneficial though accidental use by Trousseau of iodin in exophthalmic goiter, to Plummer and his associates at the Mayo Clinic, and also to the group of clinicians at the Massachusetts General Hospital who favor this method of treatment. Experience has taught me that iodin should be used with extreme circumspection in such cases.

During the forty-six years that I have been in practice, never have I seen so many cases in which this "somewhat empiric procedure," as you rightly term it, would have, if continued, greatly compromised the issue and life itself. It has been my lot to see several such cases within the last month. In one of these, 30 drops of compound solution of iodin was being given daily by the family physician. The patient going from bad to worse, I was consulted. Wishing to ascertain whether the iodin was responsible for this, I had the basal metabolism taken, and found that it was increasing steadily at the rate of 5.5 a week. Removal of the iodin caused gradual recession of the basal metabolism rate to normal, and reduced the pulse from an average of 130 to 90. In another case in which the pulse was 110 and there were marked initial eye symptoms, the family physician had casually said to the patient, "We now treat exophthalmic goiter with iodin." Having consulted her ophthalmologist for her eye symptoms, he advised her to consult me before taking any iodin. I found her basal metabolism *plus* 58. Iodin would very likely have brought this young girl beyond relief. In a third case, iodin had been given for some time. This having caused a loss of 27 pounds (12 kg.) and aggravated all symptoms, her physician had her consult me. Such a wreck it has seldom been my misfortune to see. "Iodin cases," as we call them in this office, are unusually resistant to other measures, and what the issue will be in this case cannot be foretold.

Should we, even with a low basal metabolism rate, invariably use iodin? In a woman from Japan, the basal metabolism was found to be *minus* 20, with blood pressure 85 systolic. Iodin, tried by a physician in Korea, had aggravated all symptoms. Why? Because the case had been due to mental stress, two fires, the earthquake and a harassing female companion, and the sympathetic control of all endocrines and of the arterioles principally had lost its tone.

At best, iodin can be tried *only* when the basal metabolism and pulse are normal, and when tachycardia, tremors and eye symptoms are absent. Under any other circumstance it is a double-edged sword with its sharpest edge menacingly turned toward the patient at every turn.

C. E. DE M. SAJOUS, Philadelphia.

To the Editor:—In view of the recent developments in thyroid therapy, the following extracts from Robley Dunglison's translation of the third edition of Magendie's "Formulaire" (Philadelphia, 1824), may be of interest as showing the status of iodin therapy a century ago. It will add to the historical setting to recall that iodin was discovered by Courtois in 1813.

M. Coindet, a physician of Geneva, first used iodine in medicine. He employed it in the treatment of goitre with very marked effects. These trials were repeated by several physicians, both in France and Switzerland; and their observations would seem to prove that we now possess, in iodine, an efficacious remedy for the removal of a disease which has been hitherto cured with difficulty.

Although success may be especially expected to follow the use of iodine when the goitre is recent, and has occurred in individuals who have not yet arrived at maturity, the remedy has, nevertheless, been known to dissipate old, hard, and voluminous goitres; but, as the treatment in these cases is necessarily more protracted, it is found that the long-continued use of iodine injures the stomach. To avoid this inconvenience, iodine has also been applied outwardly by means of friction.

The tincture of iodine may be given to adults in the dose of 10 drops, three times a day, in a little sugared water. The dose may be progressively increased to 20 drops three times a day: 20 drops contain about a grain of iodine.

Dr. Coster of Paris, who had an opportunity of witnessing the practice of Dr. Coindet of Geneva, and who asserts that he has frequently used this medicine with the greatest advantage, has lately published a *mémoire* in which he ascribes to iodine a more generally efficacious action than, it is to be feared, it is entitled to; this is the more to be regretted, as these overcharged encomiums frequently occasion considerable disappointment, and cause many medicines to be neglected which were deserving of a better fate. According to that gentleman, iodine is useful, 1st, For the resolution of tumours of the thyroid gland, when they are not of a scirrous, cartilaginous or bony nature, or when the tumour does not contain calcareous concretions.

2dly: For the restoration of suppressed catamenia, when such suppression occasions any other sanguineous evacuation, or when any irritation, situated in another viscus, causes a flow of blood thither, and turns it from its natural course.

3dly: To determine towards the uterus the plethora necessary for the establishment of menstruation in young females, where that natural evacuation has not occurred.

4thly: To destroy any disposition to scrophulous phthisis.

5thly: To remove glandular congestions, and indurations of a scrophulous or chronically syphilitic character.

6thly: For the cure of scrophulous ophthalmia, when in a chronic state.

7thly: To hasten the cicatrization of venereal ulcers.

Dr. Gairdner, however, in a recent *ex professo* work on iodine, the first monograph of the kind which has appeared in England, has given a lamentable picture of the effects of that substance when injudiciously exhibited; the symptoms usually produced, in addition to those above described, are said to be, peculiar, great, and persevering anxiety and depression of spirits, which are very different from hypochondriasis, inasmuch as they dwell principally on the present, and have no reference to the future; the emaciation and cholera produced by it, are also described as frequently extending to a dangerous and even fatal result. When the patient is under the full constitutional influence of iodine, Dr. Gairdner has found a degree of tremor to come on, which he considers as a good gauge of the extent of nervous excitement which has taken place, and is seldom or never absent when that excitement has proceeded to any considerable degree; this nervous excitement simulates chorea, and occasionally endures for a considerable length of time. In the chorea induced by iodine, Dr. Gairdner has found sedatives, such as opium, hyoscyamus, etc., more beneficial than any other class of medicines; purgatives are said invariably to do harm. It is somewhat curious that Decarro, Coindet, Erlinger, Formey, Hufeland, and others, have employed this remedy in a variety of cases, but have never witnessed its deleterious properties; or, at all events, have never described them.

At the present day [November, 1822], the Genevese and Swiss physicians are much less enthusiastic with regard to the advantages which they at first imagined to have accrued from the preparations of iodine;

they now say that serious accidents have followed their employment, such as chronic inflammation of the stomach, and considerable emaciation of the whole body, particularly of the mammae. I have never witnessed similar accidents, unless the doses have been carried very high; but this is no reason why we should not be very circumspect in the employment of these new preparations.

Torald Sollmann, M.D., Cleveland.

"THE SURGICAL TREATMENT OF ANGINA PECTORIS"

To the Editor:—The editorial on this subject, in The Journal, October 25, warrants comment. Few can object to the words of caution about indiscriminate resort to surgery in the treatment of angina pectoris but I suspect many will not accept so sweeping a condemnation of the surgical treatment; the operation has already been done on selected patients of some of the leading cardiologists in this country and abroad.

And why is it discreditable for the surgeon to operate under the "instructions" of an internist? There is certainly much to commend in such cooperation. It should be remembered that medical men are not in agreement as to the exact sequence of events occurring in an attack of angina; Sir James Mackenzie, himself, in his recent book (Angina Pectoris; 1923, London, Henry Frowde, and Hodder & Stoughton) gives weight to an explanation based on changes in the coronary arteries but states that he is forced to a conception of "myocardial fatigue" to explain those cases in which normal coronary vessels are found at necropsy. In this same book he doesn't even mention Allbutt's theory of an aortic causation. This latter theory has gained many adherents—a recent convert being no less an authority on cardiology than Professor Wenckebach of Vienna. Perusal of the case reports submitted by Mackenzie in his book on angina makes it apparent that he confuses instances of angina pectoris with others of coronary infarction, two conditions which American clinicians have been endeavoring to separate. If the internists are not clear on these conditions does it seem reasonable to expect the surgeon, with his different interests and training, to settle the complex problems pertaining to angina pectoris before it is proper for him to operate, especially if he does so with the close cooperation of a medical man?

It is already established that the surgical treatment of angina pectoris has often succeeded in largely or completely removing the pain, which as is well known is often of an agonizing character. This is a benefit, and is not the patient entitled to it? Furthermore, it should also be recalled that the operation of cervical sympathectomy has already been done many times and for various conditions (over 200 times by Jonnesco for epilepsy, glaucoma, exophthalmic goiter and migraine) without apparent detriment to the patient.

As to whether the operation may hasten the death of the patient there is still a question. The probable mechanism of sudden death occurring in patients showing the anginal syndrome is that of ventricular fibrillation, a new rhythm that puts the heart out of business as a forward propellant of the blood and so is incompatible with life. I have discussed elsewhere (*Boston M. & S. J.* **190**:686 [April 24] 1924) the conditions which De Boer stipulates as those underlying fibrillation of the ventricles. In brief they are (1) a shortening of the refractory stage and (2) a decrease in the conductivity of the stimulus through the ventricle. In the conception of angina pectoris which I have recently suggested (*Arch. Int. Med.* **34**:137 [August] 1924) the depressor nerve plays an important part. It is known that stimulation of the peripheral end of this nerve causes a reflex vascular dilatation and also an inhibitory reflex back to the heart by way of the main trunk of the vagus. We don't know the last word about the action of the nerves on the heart, but to my mind it is quite conceivable that when other conditions are favorable this reflex vagal stimulus may be a factor in the onset of ventricular fibrillation. If such be the case, the severence of the nerve connection between the heart and aorta and the spinal cord may have a protective value in lessening the chance for the onset of fibrillation of the ventricles.

With the statement "The surgeon cannot repair the degenerated and worn out heart muscle," I am heartily in accord. It is extremely important from the standpoints of prognosis, treatment, and prevention to study the patient to determine, if possible, the type of heart disease with which the syndrome, angina pectoris, is associated. It may well be that angina is to be considered as a danger signal as to the point at which exertion must stop. In the determination of the importance of the loss of this theoretical danger signal, following cervical sympathectomy, we need data as to the frequency of sudden death in patients who have undergone the operation. It is well known that exertion is not necessarily harmful to patients with heart disease; when more is asked of the circulation than it can perform symptoms occur which cause the patient to cease exerting. Heart failure with congestion is the more usual result when the power of the heart is below that of the demand made upon it. The manner of death from heart failure with congestion is not sudden; patients who have undergone cervical sympathectomy for the relief of the pain of angina pectoris may, then, die in bed rather than in the sudden dramatic manner peculiar to angina.

A decision as to the value of the surgical treatment of angina pectoris should not be accepted today from the pen of Mackenzie (or from me) but will be possible after time has permitted the collection of the data from a sufficient number of patients upon whom the operation has been performed.

William D. Reid, M.D., Boston.

"RHINAL MYIASIS"

To the Editor:—Referring to the case of screw worms in the nose reported by Dr. O. J. Dixon (The Journal, October 25, p. 1332), it might be interesting to say that in the early days on the frontier, animals and sometimes human beings were often attacked by screw worms with fatal results.

Twenty-seven years ago I reported for duty as a first lieutenant in the Medical Corps, U. S. Army, at Fort Sill, Okla., and at that time many cases of screw worm infection in animals were observed. Cattle, horses, sheep and dogs with wounds were often infected. About this time it was discovered that chloroform was a specific for screw worms. I believe that this was worked out by Col. J. D. Glennan, Medical Corps, U. S. Army (then captain), and Major Gen. Hugh L. Scott, U. S. Army (then captain of the Seventh Cavalry). After considerable experimental work it was found that choloroform would kill screw worms. This was a great relief to those who came in contact with these worms which were so prevalent in that part of the country.

M. M. Cloud, M.D., Los Angeles.
Captain, Medical Corps, U. S. Army, Retired.

HEMORRHAGE DURING OPERATIONS

To the Editor:—In Gatch and Little's interesting study of loss of blood during operations (The Journal, October 4, p. 1075), no mention is made of the fact that in some of the operations the removal of large masses of vascular tissues reduces the patient's blood volume need almost proportionately. Allowance for this should be made in "forming a better idea of how large a factor hemorrhage is in surgical risk." Donors of blood in transfusions and laboratory ani-

mals that are merely bled do not simultaneously suffer corresponding reduction of tissue, and therefore do not furnish parallels to patients who undergo amputations or excisions.

D. G. REVELL, M.B., Edmonton, Alberta.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE ABRAMS EXPOSÉ — HOBART BRADSTREET

To the Editor:—As secretary of the Summit County Medical Society (Ohio), I wrote to the editor, Mr. E. E. Free, of the *Scientific American* thanking him on behalf of the society and expressing our approval and satisfaction for the exposé of the quackery of the Abrams machinery. I received a letter of appreciation from the editor for our expression. How many societies have written to him? Have any written? If not, why don't they? One question: Are Hobart Bradstreet of Chicago and his "Spine-Motion" reputable or, rather, genuine?

A. S. MCCORMICK, M.D., Akron, Ohio.

ANSWER.—The suggestion of Dr. McCormick that physicians do not hesitate to show publishers of lay periodicals that they are interested in the defense of scientific medicine is an excellent one.

A somewhat careful examination of the "Spine-Motion" material put out by Hobart Bradstreet shows the inherent absurdity of the entire matter. Bradstreet apparently attempts to establish the thesis that the "chief direct cause" of the slowing down of the human system with age is due to "the settling of the spine." There is absolutely no basis of fact for any such theory. Hence the whole superstructure rests on a fallacy. Bradstreet speaks of the vertebrae "crowding" the spinal nerves and "causing a direct impingement or pressure." There is no anatomic or physiologic basis for any such statement. Bradstreet also says:

> If you have an impingement toward the top of the spinal column — at the neck, or base of the head — it brings about a headache, perhaps. An inch further, and it may be the optic nerves which are oppressed, and the eyes are strained.

Evidently Bradstreet does not know that the optic nerves are wholly within the skull and do not come near the spinal column. Bradstreet also states that his "Spine-Motion" exercises "stimulate cartilage growth." If there is one thing that seems to have been proved beyond question, it is that one cannot stimulate the growth of cartilage. The man says further that "age affects cartilage growth less than almost any form of replacement." The facts are that age affects cartilage growth more, probably, than any other tissue in the body. The statement also made by Bradstreet that an impingement of certain spinal nerves "is as many times the cause of kidney trouble as . . . alcoholic indulgence" is preposterous and just as absurd as the statement following it, quoted from that prince of faddists, Macfadden, that, by straightening and stretching the spine, any one "can take thirty years off the age condition." Summed up, this whole business is based on a fallacy. The author has, apparently, been reading freak publications like *Physical Culture* and swallowing the absurdities of the chiropractors, hook, line and sinker.

URTICARIA AFTER BATHING

To the Editor:—During the month of July I had several cases of an urticarial rash developing after bathing in the lake here. A few minutes after coming out of the water, an intense itching developed, with small red spots about the size of a pin head which developed a wheal the size of a dime in about an hour. In from twenty-four to forty-eight hours, the rash disappeared. The water turned green a few days before I had the first case, and it seemed that it was poisonous only on certain days, as members of my own family were in every day and only on certain days were they affected. Could you give me the cause of this? There is no refuse, sewage or anything of that sort running into this lake; it is fed entirely by springs. I found that a saturated solution of lead acetate in a 20 per cent. alcohol solution gave almost instant relief.

A. D. GALLOWAY, M.D., Clayton, Wis.

ANSWER.—The description of the eruption suggests that it was due to the bites of insects. It began with pinhead sized red spots, itching intensely, that became dime sized wheals within an hour and disappeared quickly. It occurred only for a short time and in persons not subject to urticaria. These facts are all suggestive of insect bites.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 11-12. Sec., Regular Board, Dr. J. W. Walker, Fayetteville. Sec., Homeopathic Board, Dr. George M. Love, Rogers. Sec., Eclectic Board, Dr. C. E. Laws, Fort Smith.

CONNECTICUT: New Haven, Nov. 11. Sec., Homeopathic Board, Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

CONNECTICUT: Hartford, Nov. 11-12. Sec., Regular Board, Dr. Robert L. Rowley, 79 Elm St., Hartford.

DELAWARE: Wilmington, Dec. 9-11. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

KENTUCKY: Louisville, Dec. 9. Sec., Dr. A. T. McCormack, State Board of Health Bldg., Louisville.

MAINE: Portland, Nov. 11-12. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MARYLAND: Baltimore, Dec. 9-12. Sec., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore.

MASSACHUSETTS: Boston, Nov. 11-13. Sec., Dr. Charles E. Prior, 144 State House, Boston.

MISSOURI: Kansas City, Nov. 10-13. Sec., Dr. Cortez F. Enloe, Capitol Bldg., Jefferson City.

NEBRASKA: Lincoln, Nov. 18-20. Supt., Dr. J. D. Case, State House, Lincoln.

OHIO: Columbus, Dec. 10-12. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

SOUTH CAROLINA: Columbia, Nov. 11. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

TEXAS: Dallas, Nov. 18-20. Sec., Dr. T. J. Crowe, 918-919 Mercantile Bank Bldg., Dallas.

VIRGINIA: Richmond, Dec. 9-12. Sec., Dr. J. W. Preston, 720 Anchor Bldg., Roanoke.

ALLEGED "DIPLOMA MILL" IN INDIANA

Following investigation by federal inspectors and a disruption in the ranks of its officials, the Gary State College has been declared in the Gary *Post-Tribune* to be a fake from which diplomas are issued with little formality, on the payment of a stipulated sum. According to reports, the Gary State College was originated in 1923 by Antanas Smitas, who claimed to be a doctor. There is no doctor by that name in the American Medical Directory. An examination of the official records of the Gary State College by the *Post-Tribune* reveals that Smitas "scrawls a string of alleged degrees after his name," but that he can barely read or write the English language. Instead of there being about fifty students enrolled at the Gary State College, as Smitas claimed, the *Post-Tribune* obtained the names of at least 113 from all over the country, each of whom paid from $5 to $15 when he applied for admission. Several paid from $200 to $400 for whatever they were seeking from the school. The *Post-Tribune* does not hesitate to say that Smitas had some connection, the nature of which is not clear, with other diploma mills which have been exposed recently. Wanda H. Kalinouskos of Gary claims, it is reported, that she has a letter from Smitas as a receipt for a diploma from the St. Louis College of Physicians and Surgeons. The inference is, the *Post-Tribune* says, that Smitas acted in the capacity of agent for the St. Louis diploma mill, and that he gave this girl a diploma as part payment for her services as his stenographer. Joseph Siemion, Gary, seeking a degree of master of bacteriology, paid $255 of his $270 tuition fee, then became convinced that the school was a "fake," and dropped out. Siemion stated, it is reported, that a degree was granted to Ignes Perminas, Monticello, Mass., and that he took his final examination in bacteriology four months after entering the school. A. P. Howland, Chicago, the second president of the Gary State College, said that at a meeting, August 27, Smitas resigned as president, saying that he had been appointed a special investigator for the "national board of medical inspectors" and also was a federal secret service agent. Smitas then announced that new officers would be elected; thereupon Howland was elected president. Howland stated that while acting as president he received none of the school's mail, as Smitas, on departing for New York, instructed the postmaster to withhold the mail until his return. Howland claims, it is reported, that he performed none of the duties of president of the school; that some one notified him of Smitas' disappearance about October 2, and

that he then came to Gary to investigate the records of the school. He discovered, it is reported, "grave irregularities," which he presented to the officers and directors of the school at a called meeting, October 19. At a meeting in Gary, October 23, of officers, directors, students and others, dissolution of the school was attempted in order to escape the law. Howland resigned at this meeting, and Smitas again assumed the direction of the school.

The articles of incorporation of the Gary State College were filed by the secretary of state, June 19, 1923. They said that the object of the association was to give instruction in medicine, history, literature, science, music, law, pharmacy, civics, agriculture, business and commercial English, foreign languages, Americanization, mathematics and all elementary branches usually given in an academy. The names of the incorporating members were: Joe Saramski, Anna J. Smitas, John Malimauskos, Rev. Ilietrutza, Dr. Antanas T. Smitas and I. C. Permanimas, all of Gary. The *Post-Tribune* claims that few of the students of the school lived in Gary and that three licensed and practicing physicians of Chicago were connected with the Gary State College in the rôle of students: Dr. Champe, 901 Sheridan, Chicago; Dr. Moritz Pos, 6239 Sheridan, and Dr. Samuel D. Nixon, 6400 South Halsted Street; that although $300 was the normal price for a doctor's or master's degree, apparently, one student at least received a degree of bachelor of science for $25. There was plenty of evidence showing all of the steps leading up to the issuance of several diplomas. In a roster of the "phantom faculty" there seemed to be many subjects for which there were no instructors. The list includes: professor of gynecology, F. Maxim James, A.B., M.D.; professor of pharmacology, Peter L. Lucas, Ph.D., R.Ph.; professor of preventive medicine in nose, throat and pelvic diseases and dietetics, Elijah G. Harris, M.D., 3510 Reta Avenue, Chicago; professor of zoology, G. T. Esenberng, A.B., M.D.; professor of osteology, A. T. Smitas, A.B., M.D.; professor of anatomy, M. R. Dzierua, M.D.; professor of histology, J. R. Smith, M.D.; professor of bacteriology, Antanas T. Smitas, M.D., and professor of pathology, J. H. Morrison, D.D.L.

Various agencies have been investigating the Gary State College. Dr. Eldridge M. Shanklin, Hammond, president of the Indiana State Medical Association, obtained evidence for the state board of medical examination and registration, which was turned over to the U. S. district attorney. Dr. Shanklin said, it is reported, that he obtained correspondence which, if believed, indicates that a medical degree could be obtained for money, and that it was not even necessary to attend the school in person to obtain such degree. Two warrants charging Smitas with obtaining money under false pretense have been issued, and policemen guard the "college." In these warrants M. R. Dzierwa, a former student, alleges that he invested $265 as part payment for a course in medicine which he did not get. Walter Pas claims that he lost $325 under the same conditions. But Smitas has disappeared!

Oklahoma July Examination

Dr. J. M. Byrum, secretary, Oklahoma Board of Medical Examiners, reports the written examination held at Oklahoma City, July 8-9, 1924. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Ten candidates were examined, all of whom passed. Seven candidates, including 1 undergraduate, were licensed by reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Number Licensed
Northwestern University	(1924)	1
University of Oklahoma	(1924)	9

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Yale University	(1893)	Connecticut
State University of Iowa College of Medicine	(1923)	Iowa
University of Louisville	(1924)	Kentucky
Mississippi Medical College	(1911)	Nevada
Jefferson Medical College	(1923)	Missouri
University of Tennessee	(1904)	Tennessee
Undergraduate		Mississippi

Book Notices

THE HOSPITAL SITUATION IN GREATER NEW YORK. Report of a Survey of Hospitals in New York City by the Public Health Committee of the New York Academy of Medicine. Prepared by E. H. Lewinski-Corwin, Ph.D., Executive Secretary, Public Health Committee, the New York Academy of Medicine. Cloth. Price, $5. Pp. 356, with 16 illustrations. New York: G. P. Putnam's Sons, 1924.

This is a splendid survey of existing hospital facilities in New York. It contains much practical knowledge about running hospitals. An historical sketch carries the reader down through the various stages of development to the present. The object of the survey was to ascertain the existing hospital services in the metropolis, to analyze their excellent points and defects, and to make suggestions for improvements. Besides the data covering the hospital situation in the metropolis, there is included a vast amount of well chosen information that is of general interest, especially the chapters on the problem of illness, hospital finances, records, and other subjects that concern hospital administrators everywhere. The chapter on hospital administration, especially, concerns the usual problems with which the management of a hospital has to contend, and also tells about cooperative buying by many hospitals in New York City. The chapter on the nursing situation analyzes the conditions connected with the supply of nurses and with the training of nurses, including differences between the curriculums of the various nurse training schools as well as much information about the management of the nursing department in individual institutions. The provision for the care of convalescents in the city and its environs is the subject of a chapter that tells the experience of hospitals in the handling of their convalescents, and exhibits an inventory of the facilities in and around the city for the care of convalescents. Under "special problems" there is a brief discussion of hospital provisions for chronic patients; study and prevention of mental diseases; neurologic service; the cripple; orthopedic patients; maternity and infancy; contagious disease hospitals, and occupational therapy. In the chapter on medical organization, the types of staff organization and the methods that have been used in the different hospitals to meet the various requirements are considered. The authors have avoided dogma, and the experience of New York hospitals may well be studied elsewhere. According to the survey, the total number of hospital beds in the city is sufficient for present needs, but their distribution by types of services is not best suited to actual demands. Among the needs mentioned in the conclusion of this report are facilities for the treatment of mental disease; a psychopathic diagnostic hospital; more accommodations for neurologic cases, venereal, chronic, certain types of convalescent patients, and provision for industrial rehabilitation. It was found that an outstanding need of many of the hospitals is for adequate finances. Such a survey or stock-taking of existing conditions in each community over the entire country would undoubtedy reveal many instances in which readjustments, perhaps additions, would improve present hospital facilities. A survey of this kind would also quicken the sense of community responsibility in the care of the sick.

LEÇONS DE SÉMIOLOGIE CARDIO-VASCULAIRE. Les troubles fonctionnels. Par Charles Laubry, Médecin de l'Hôpital Cochin. Paper. Price, 35 francs. Pp. 496, with 23 illustrations. Paris: Gaston Doin, 1924.

This book differs from most of the recent books on heart disease in several particulars, the most gratifying difference being that it is not built about frequent illustraitons derived from laboratory methods of examination, "more or less original," as Pezzi comments, but is purely clinical, based on the observations and deductions of an author with a wide clinical experience, and with a wide point of view on that experience. To those of us who believe that "diagnoses are made not in the laboratory, but in the cortical cells," this will speak much in its favor. The author does not follow the usual plan of considering heart disease according to a classification based on the morbid anatomy, but devotes himself to a systematic consideration of the symptoms of heart disease, and the

guidance of the reader in the recognition and interpretation of these symptoms. The style carries with it much of the personality of the writer, and especially his spirit and enthusiasm. The introductory chapter concerns the clinical value of symptoms in diagnosis and prognosis: The purely subjective symptoms of heart disease are then considered under three heads: 1. Under "cardiothoracic pain" is discussed all pain which by its localization might be referable to the heart, the nature of such pain, its differential diagnosis, and its interpretation in diagnosis and prognosis. 2. The second heading is devoted to a systematic and comprehensive description of angina pectoris, and a discussion of its pathogenesis and significance characterized by the eclecticism to which the author states he wishes to conform. 3. Under the third heading, "the palpitations," defined as "heart beats perceptible and uncomfortable to the patient," are grouped the arrhythmias, with their differential diagnosis and significance. Then follow chapters on cardiac dyspnea, edema of the lung, Cheyne-Stokes breathing, other respiratory, abdominal and nervous symptoms, vertigo, syncope, the special senses, and fever. An idea of their scope may be gained from selecting at random the chapter on acute edema of the lung. The symptomatology of acute edema of the lungs is described minutely, with the objective findings, its course, and its differential diagnosis. The various views on its pathogenesis are impartially considered, followed by a discussion of its etiologic significance and its symptomatic value. A translation would be of value to American medical literature.

COLLECTED PAPERS ON MECHANO-THERAPEUTICS. By Edgar F. Cyriax, M.D. Cloth. Price, 12 shillings net. Pp. 472, with 126 illustrations. London: John Bale, Sons & Danielsson, 1924.

This collection of sixty-four short papers, all but seven of which are in English, includes principally case reports and general discussions of bone, joint and nerve injuries and mechanical affections and their treatment by massage, vibration and certain special manipulations originated by Henrich Hellgren and his successors in the Swedish system of gymnastics and massage. Many of the author's ideas as to the occurrence of minor displacements, the so-called "subluxations" of the vertebrae, and their "reposition" by manipulation, are not generally accepted by the regular schools of medicine. His observations on partial spondylolisthesis are reminiscent of Hibbs' recent contributions. There is a generally awakening interest in physiotherapy, of which mechanotherapeutics is an important branch. It is to be hoped that this book will be provocative of discussion leading to a better conception by the average medical man of the actual nature and possibilities of physical methods of treatment.

GASTROPATÍAS DE ORIGEN RENAL. Estudio Clínico y Patogénico. Por el Dr. Juan Raúl Goyena, Professor suplente de Clínica Médica de la Facultad de Medicina de Buenos Aires. Paper. Pp. 203. Buenos Aires: Pedro Gargia, 1924.

The influence of renal conditions on diseases of the stomach is a subject that occasionally may cause confusion in differential diagnosis. Dr. Goyena has divided his material into four groups, according to the manner in which the kidney exerts its influence; namely, nervous system; blood system; both blood and nerves, and mechanical. In each chapter a section is devoted to diagnosis, in an effort—not always successful—to point out the differential features. The feeling cannot be escaped that the book would have gained by a closer acquaintance with American material.

CLINIQUE ET ICONOGRAPHIE MÉDICO-CHIRURGICALES DES MALADIES DE LA FACE ET DU COU. Par Henri Aboulker, Chef du service oto-rhino-laryngologique de l'Hôpital civil de Mustapha. Préface du Professeur Pierre Sébileau. Second edition. Paper. Price, 32 francs. Pp. 583, with 420 illustrations. Paris: A. Maloine et Fils, 1924.

This is the production of a man who has proved himself to be both a surgeon, in the practical sense, and a keen thinker. It does not pretend to be a textbook but consists mainly of case reports taken from the author's own experience and presented as clinical lectures. In fact, the book forms an excellent monograph containing the rarer diseases or, we might say, the borderline conditions that confront the specialist or general surgeon. Aboulker presents the cases with their complete histories and explains the entire reasoning as to diagnosis or treatment. These case reports are further facilitated by the presentation of 420 actual photographs. The author devotes a chapter to local anesthesia about the head and neck, which he uses exclusively in his work. Such subjects are covered as foreign bodies in the nose or ear; congenital preauricular fistula; Gradenigo's syndrome; ulceration of the internal carotid into the cerebral fossa; syndrome of hysterical labyrinthitis; origin of hypertension in Ménière's syndrome and cure by decompression; cerebellar abscess; hemiplegia in the course of mastoiditis caused by brain abscess; abscess in the silent areas of the brain, and protective meningitis following tuberculous meningitis.

Miscellany

EYE SIGHT AND AUTOMOBILE ACCIDENTS

A survey by the Eye Sight Conservation Council of America shows that only four states, Delaware, Minnesota, Oregon and Pennsylvania, have any statutory reference to the eye sight of operators of automobiles, and that the provisions of these state laws are merely vague statements that the eye sight of applicants must not be impaired or defective. The vision of applicants for automobile licenses is tested in five other states, Maryland, New Hampshire, New Jersey, Ohio and Rhode Island. The conclusion reached is that proper attention is not given to the eye sight of practically the entire motor driving population of the United States. The seriousness of that situation is illustrated, for example, by the work of the police department of Roanoke, Va., where, since January, there has been a regulation that applicants for automobile drivers' licenses must have vision at least one-half normal in order to receive a permit. If the vision cannot be brought to half normal by glasses or other means, the permit is permanently refused. Among 4,496 applicants in that city, 124 were refused permits until their vision was improved, and three were refused permits unconditionally because of poor vision. In May, the Detroit police department found among 1,654 motorists 26.4 per cent. with vision below the normal standard; seventeen were blind in one eye; 133 had less than half vision in one eye, and 192 had less than two-thirds vision in one eye. A conference on street and highway safety, recently organized by Secretary of Commerce Herbert Hoover, is studying the traffic accident problem and coordinating the work of various national organizations which aim to promote safer traffic conditions. According to the National Bureau of Casualty and Surety Underwriters, the fatal automobile accidents increased from 11,067 in 1920 to 15,700 in 1923, and the persons injured from 276,000 in 1920 to 392,000 in 1923. The report asserts that 85 per cent. of these accidents are preventable.

DENSITY OF POPULATION AND MORTALITY

The relation of mortality rates to density of population has been studied for rural and urban areas in the registration area and for registration cities of the United States by T. J. LeBlanc, whose report appears in the *American Journal of Hygiene* for September, 1924. The 1910 census is the source of most of the data studied. The unit of area selected was the square mile. The number of inhabitants per square mile of cities and counties was correlated with their death rates. The findings tend to disprove the popular belief that increases in densities of population cause increases in death rates. In cities there was a slight tendency the other way; namely, as density increased, the mortality rate became a little lower. This might be due to the superiority of sanitation in very large cities, where populations are most crowded; but the same tendency is seen in the case of cities of from 10,000 to 25,000 inhabitants. For rural areas, little if any relation was found between the density of population and the death rate,

except for the age group 65 and over, which showed an unfavorable influence exerted by more dense settlement. LeBlanc points out that the population per smaller unit of area, the crowding in an acre, or the number of inhabitants to a room might show a contrary result.

Medicolegal

Indemnity Reduced for Ability to Visit Physician—Visits Inconsistent with Confinement to House

(Sheets v. Farmers' & Merchants' Mut. Life & Casualty Ass'n et al. (Kan.), 225 Pac. R. 929)

The Supreme Court of Kansas says that an insurance policy held by the plaintiff provided for two rates of insurance: one, for disabling sickness by reason of which he was necessarily and continuously confined within the house; the other, for disabling sickness which did not necessarily confine him within the house. He had an attack of appendicitis and was taken to a hospital, where he remained about three weeks. Then he was taken home, where he remained unfit to do any work or transact any part of his business duties for over six weeks; but it appeared that he left his home and made five calls on his physician during the period for which he claimed indemnity under the insurance policy mentioned above. He recovered a judgment on the policy at the higher rate, for the more than nine weeks stated; but that judgment is reversed on the ground that the policy did not warrant the payment of full indemnity for the time that the insured was able to leave the house and make visits to his physician. Under such a contract, mere disability of the insured to work or pursue his ordinary vocation does not entitle him to the higher rate of indemnity. In order to recover full indemnity, the degree of his disabling sickness must be such as to keep him necessarily and continuously in the house. It was not unreasonable to fix a higher rate for a sickness so serious as to confine the insured to the house, than should be paid for an illness which disabled him from work or business, but did not prevent him from leaving his house and making calls on his physician, or on others he chose to visit. The expense of the sickness where he was able to visit his physician would ordinarily be less than where the physician must attend him in his home.

Locomotor Ataxia and Mental Capacity

(McAllister et al. v. Security Ben. Ass'n et al. (Mo.), 261 S. W. R. 343)

The Kansas City (Mo.) Court of Appeals says that a holder of a benefit certificate died, Aug. 4, 1922, aged 65 years. About May 13, 1922, he had the beneficiary changed. Since 1900 he had had locomotor ataxia. The plaintiffs depended largely on the nature and effect of this ailment as a basis for the contention that he had not the mental capacity to change the beneficiary in the certificate. The testimony tended to show that he became very weak physically, and was unable to care for himself for some years prior to his death; but there was no proof, even by inference, that this physical weakness was accompanied by mental weakness. A physician testified that he had known the insured for ten years, and that at all times he found his mind clear, except during the last two months of his life, at which period convulsions developed, after which he would be in a state of confusion mentally for a day or two; but there was no proof that the change in beneficiaries was made during one of these periods of temporary confusion. The trial court held with the plaintiffs that the insured was not of sufficient mind and mental capacity to make the stated change of beneficiaries in his benefit certificate; but the judgment of that court is reversed, the cause being remanded with directions to enter a judgment for the beneficiary designated in the changed certificate. Locomotor ataxia, according to Webster's dictionary, the court of appeals says, is "a disease of the nervous system characterized by sclerosis of the posterior columns of the spinal cord, and attended with peculiar disturbances of gait, difficulty in coordinating voluntary movements, loss of reflexes, and disorders of sensation, nutrition and vision." The court may not therefore consider that mental incapacity is necessarily a result of locomotor ataxia, although it might be an influencing cause of mental disorder when, and only when, it is complicated with dementia from some other cause. But this court failed to find in the record any evidence that the insured had dementia. It requires no more mental capacity to change beneficiaries in a life insurance policy or a benefit certificate than it does to make a will; and the rule in Missouri, as reflected in the opinions of the appellate courts, is that the standard of mental capacity required to sustain a will is that the testator must have had sufficient mind and understanding to comprehend the nature of the transaction in which he was engaged; the nature and extent of his property, and to whom he desired to give it, without the aid of any other person.

Creation of Health District Coextensive with County

(Stuckenbruck v. Board of Supervisors of San Joaquin County et al. (Calif.), 225 Pac. R. 857)

The Supreme Court of California holds constitutional the act approved May 21, 1917, providing for the formation, government and operation of local health districts. It also holds that the defendant board of supervisors did not exceed its authority in attempting to create a health district having the identical boundaries of the county within which it was sought to be formed. The effect of permitting the formation of such a health district, it was argued, would be to create two sets of officials exercising the same powers, and would tend to cause duplication and confusion, and impose needless burdens on the taxpayer. But the court thinks that a sufficient answer to that would seem to be found in the fact that, as the record in this case disclosed, the powers to be exercised by the local health district in the instant case differed materially from and were much broader in their scope than those which would be exercised by the county officials of San Joaquin County. Perhaps the most vital difference between these two sets of powers consisted in the fact that under the county government act affecting the county of San Joaquin the health regulations of the county have no application to incorporated cities and towns, of which there are several in that county, while under the act of 1917 a health district when formed may, with the consent of the governing bodies of such cities and towns, acquire jurisdiction to operate within as fully as without their boundaries.

Society Proceedings

COMING MEETINGS

American College of Radiology and Physiotherapy, Chicago, Nov. 12-14. Dr. Roy W. Fouts, 121 South 33d Street, Omaha, Secretary.

American Pathological Society, Washington, D. C., Dec. 29-31. Dr. E. B. Krumbhaar, Chestnut Hill, Philadelphia, Secretary.

American Physiological Society, Washington, D. C., Dec. 30-Jan. 1. Dr. Charles W. Greene, University of Missouri, Columbia, Mo., Secretary.

American Society of Biological Chemistry, Washington, D. C., Dec. 29-31. Dr. Victor C. Myers, New York Post-Graduate Medical School, New York, Secretary.

Association of Military Surgeons of the United States, San Antonio, Tex., Nov. 13-15. Major E. E. Hume, M. C., U. S. Army, Army Medical Library, Washington, D. C.

District of Columbia, Medical Society of, Washington, Dec. 3. Dr. C. B. Conklin, Medical Science Building, Washington, Secretary.

Federation of American Societies for Experimental Biology, Washington, D. C., Dec. 29-31. Dr. E. B. Krumbhaar, Chestnut Hill, Philadelphia, Secretary.

Philippine Islands Medical Association, Manila, Dec. 18-20. Dr. I. Concepcion, College of Medicine and Surgery, Manila, Secretary.

Porto Rico, Medical Association of, San Juan, Dec. 13-14. Dr. Ramon M. Suarez, Santurce, Secretary.

Radiological Society of North America, Kansas City, Mo., Dec. 8-12. Dr. M. J. Sandborn, 844 College Ave., Appleton, Wis., Secretary.

Society of American Bacteriologists, Washington, D. C., Dec. 29-31. Dr. J. M. Sherman, Dairy Industry Building, Ithaca, N. Y., Secretary.

Southern Medical Association, New Orleans, La., Nov. 24-27. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Southern Surgical Association, Charleston, S. C., Dec. 9-11. Dr. H. A. Royster, 423 Fayetteville Street, Raleigh, N. C., Secretary.

Western Surgical Association, French Lick Springs, Dec. 4-6. Dr. Harry P. Ritchie, Lowry Building, St. Paul, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL for a period of three days. No foreign journals are available prior to 1920, nor domestic prior to 1923. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

28: 407-526 (Oct.) 1924

*Meningeal Irritability. M. Kasahara, Kyoto, Japan.—p. 407.
*Power of Infants' and Maternal Serum Against Pneumococci. C. W. Burhans and H. J. Gerstenberger, Cleveland.—p. 416.
*Basal Metabolism of Children with Idiopathic Epilepsy. F. B. Talbot, M. Hendry and M. Moriarty, Boston.
*Banana in Treatment of Celiac Disease. S. V. Haas, New York.—p. 421.
*Mongolian Idiocy with Teeth of Hutchinson's Type. D. C. Mebane, Rochester, Minn.—p. 438.
*Hereditary Congenital Absence of Salivary Glands. W. R. Ramsey, St. Paul.—p. 440.
*Plasma Proteins in Infants. J. Duzar and S. Rusznyak, Budapest, Hungary.—p. 441.
*Metabolism of Recurrent Vomiting. S. G. Ross and H. W. Josephs, Baltimore.—p. 445.
*Volume Index and Color Index of Red Blood Corpuscles in New-Born Infants. R. L. Haden and F. C. Neff, Kansas City, Kan.
*Immunity Results Obtained with Diphtheria Toxoid (Modified Toxin) and One-Tenth L + Mixtures of Toxin-Antitoxin. W. H. Park and A. Zingher, New York.—p. 464.
*Theobromin Sodio-Salicylate (Diuretin) in Treatment of Hydrocephalus. W. M. Marriott, St. Louis.—p. 479.
Literature on Scarlet Fever. G. H. Dick, Evanston, Ill.—p. 484.

Meningeal Irritability.—Meningeal irritability was produced by Kyoto in his experiments by the introduction of several substances into the subarachnoid space. As an index of the severity of the meningeal irritation in the rabbit, he examined the number of cells per cubic millimeter of its spinal fluid. He found that simple aspiration of a large quantity of the spinal fluid produces a transient irritation in the meninges. Ringer's solution is a liquid similar to the cerebrospinal fluid. A solution isotonic to the cerebrospinal fluid of the rabbit contains between 0.6 and 0.7 per cent. sodium chlorid. The severity of meningeal irritation is less with homologous than with heterogenous serum. Fresh serum acts as a severe irritant to the meninges.

Immunity of Infants to Pneumococci.—This study was undertaken by Burhans and Gerstenberger to determine whether there is, in infancy, an immunity to the fixed types of pneumococci. It was believed that the results might help to explain why bronchopneumonia is relatively frequent and lobar pneumonia relatively infrequent during the first years of life. Approximately 40 per cent. of parturient mothers' serums showed a protective power against the three fixed types of pneumococci. This protective power was present in about 30 per cent. of the serums taken from the umbilical cord. The theory that the low incidence of lobar pneumonia during infancy is due to an immunity for the fixed types of pneumococci cannot be substantiated by these results.

Thyroid Medication in Epilepsy.—In view of the fact that varying reports have appeared in the literature from time to time on the use of thyroid in epilepsy, studies of the basal metabolism of eleven epileptic children were made by Talbot, Hendry and Moriarty. These patients were all of normal physical development and had not undergone treatment with thyroid extract. The basal metabolism of these children was normal or elevated. This is interpreted to mean that thyroid gland medication is not indicated in the treatment of idiopathic epilepsy in childhood.

Banana in Treatment of Celiac Disease.—Celiac disease is a nutritional disturbance of late infancy and early childhood, due to inability to utilize fats and carbohydrates in a normal manner. The treatment has presented discouraging difficulties. Carbohydrate in the form of ripe bananas appears to be tolerated perfectly, making it possible to bring about a clinical cure in practically all cases. Ten such cases are cited by Haas. Whether there is a factor in the banana other than the carbohydrate content which results in this cure is unknown. The treatment of this disease requires a high caloric diet, from two to three times the normal. Milk is replaced by one of the lactic acid forms. No other fat is used, and no carbohydrate, except ripe bananas and that present in the lactic acid milk. Proteins may be used in all forms and apparently in any quantity. The maximum number of bananas used in any one case was sixteen daily by a child, aged 26 months. In addition to the dietary treatment, a full dose of castor oil is given once a week, and colonic irrigations of sodium bicarbonate daily. Of ten patients, eight so treated have made a clinical recovery. Two patients not so treated died.

Mongolian Idiocy with Hutchinson's Teeth.—From the case reported by Mebane it appears that in rare instances Hutchinson's teeth may not be pathognomonic of congenital syphilis. In the 155 cases of mongolian idiocy, the Wassermann test on the blood was performed routinely, but in not a single case was it found to be positive.

Congenital Absence of Salivary Glands.—Ramsey reports the case of a child who apparently had no salivary glands and whose father was similarly affected.

Plasma Proteins.—Investigations made by Duzar and Rusznyak have brought about several important results. They determined the condition in normal infants and also showed the influence of age and of pathologic processes on the plasma proteins. The characteristic changes in certain diseases give hope that the protein factions not only will prove to be important from a diagnostic point of view, but will also permit a deeper insight into the pathologic changes which take place in the body.

Metabolism of Recurrent Vomiting.—Ross and Josephs record some observations made on a patient who suffered from repeated attacks of recurrent vomiting, during which he excreted acetone bodies, became drowsy, at times showed signs of acidosis and occasionally had convulsions. The only one of these attacks showed certain changes in the blood which reproduced artificially by a sudden, but not by a gradual, withdrawal of carbohydrate. The changes found were the rapid lowering of the blood sugar and carbon dioxid combining power of the blood. At the same time there was an early appearance of acetone bodies in the urine. During one attack the blood sugar was found to be greatly reduced. The authors believe that hypoglycemia was probably an essential factor in these attacks. It is probable that many attacks of recurrent vomiting are of the same nature as those of our patient, especially those attacks occurring with fever. Such hypoglycemia cannot be detected, unless the determination is made at the height of an attack, for recovery is very rapid. The convulsions of this patient, and the fact that they are at times to be obtained from the histories of other patients, lends strong support to the view that hypoglycemia is the determining factor in at least some of the attacks.

Blood Studies in Infants.—A study of the red cell count, cell mass, and hemoglobin content of the blood from the longitudinal sinus of eleven normal infants under 24 days of age is presented by Haden and Neff. The average red cell count is lower, the average hemoglobin is higher than in the adult. The volume index and the color index are high in every case. The saturation index is approximately normal. No quantitative changes were observed in the red cell, but there was a uniform increase in volume.

Diphtheria Immunization.—Both the new toxin-antitoxin and the toxoid preparations have given good immunizing results in the cases seen by Park and Zingher with but slight local and constitutional reactions. The toxoid has advantages in that there is no horse serum in it to cause sensitization, which happens to a slight degree with toxin-antitoxin. The substitution of goat antitoxin for horse antitoxin will obviate this difficulty and this change is now being made. Such a toxoid would do away with the fear in the population created by the recent experience with frozen toxin-antitoxin. A satisfactory toxoid preparation is probably easier to make and also more stable.

Theobromin Sodiosalicylate in Hydrocephalus.—From his experience with diuretin, Marriott believes it to be a valuable remedy in the treatment of the communicating type of hydro-

cephalus. In the light of the extremely bad prognosis of patients with this condition, and the apparent harmlessness of the therapy, he feels that the method of treatment should be given a thorough trial before resorting to difficult and dangerous surgical procedures. No beneficial effect was observed in cases in which there was complete obstruction of the ventricles. Marriott has been able to observe the effect of treatment in six patients. One of these has been under observation for almost a year. He feels that he has been able to rule out the element of coincidence and to demonstrate a definite effect of the diuretin. He has found, furthermore, that if the hydrocephalus can be controlled for a time, there is a possibility of ultimate spontaneous improvement.

American Journal of Hygiene, Baltimore

4: 1-108 (Sept.) 1924

Reproduction by Rat as Influenced by Diet. N. Simmons, Baltimore. —p. 1.

Annals of Surgery, Philadelphia

80: 289-480 (Sept.) 1924

Bipolar Theory of Nature of Cancer. G. W. Crile, Cleveland.—p. 289.
*Full Thickness Skin Graft. V. P. Blair, St. Louis.—p. 298.
*Endo-Aneurysmorrhaphy. J. H. Gibbon, Philadelphia.—p. 325.
*Cirsoid Aneurysm of Scalp. D. C. Elkin, Atlanta, Ga.—p. 332.
*Aneurysm of Internal Mammary Artery. F. W. Rankin, Lexington, Ky.—p. 341.
*Aneurysm of Palmar Arches. H. H. M. Lyle, New York.—p. 347.
*Incidence of Congenital Clefts of Lip and Palate. J. S. Davis, Baltimore.—p. 363.
Esophagotomy for Foreign Bodies in Esophagus. P. E. Truesdale, Fall River, Mass.—p. 375.
End-Results in Conditions Associated with Goiter. M. B. Tinker, Ithaca, N. Y.—p. 383.
*End-Results of Goiter Operations. A. J. Ochsner, Chicago.—p. 388.
*Results of Operation on 150 Cases of Goiter. C. N. Dowd, New York. —p. 391.
*Primary Operable Carcinoma of Breast. B. J. Lee and N. W. Cornell, New York.—p. 400.
Surgical Treatment of Hepatic Cirrhoses. W. J. Mayo, Rochester, Minn. —p. 419.
*Diverticulitis of Colon. E. S. Judd and L. W. Pollock, Rochester, Minn. —p. 425.
Surgery of Right Half of Colon. J. B. Deaver, Philadelphia.—p. 439.
*Carcinoma of Colon. C. H. Peck, New York.—p. 450.
*Multiple Primary Malignant Foci in Cancer of Colon. R. T. Miller, Jr. Baltimore.—p. 456.
Roentgenologic Visualization of Gallbladder by Intravenous Injection of Tetrabromphenolphthalein. E. A. Graham, W. H. Cole and G. H. Copher, St. Louis.—p. 473.
*Closure of Artificial Anus of Eight Years' Duration. E. Eliot, Jr., New York.—p. 478.

Full Thickness Skin Grafts.—Blair has used the full thickness skin graft in 106 cases, with 74.41 per cent. of successes. Most of the grafts were taken from the abdomen, some of necessity came from the thighs or sides, and two were taken from the back. No attention was paid to matching the direction of the cleavage line of the skin, though possibly this might in some way have some influence. It seemed that the thin skin "takes" more kindly than thick skin. The four most appropriate uses he has found for the free full thickness skin graft are the release of scars on the neck and axillae, the replacing of burn scars on the hands, neck and forearms, to replace flaps that have been taken to repair other defects and to furnish skin to line clefts in congenital or acquired syndactylism. The final result of the pedicle flap is often greatly compromised by the excess of subcutaneous fat that is included. The full thickness graft is somewhat uncertain of result, is exacting in its technic, requires three weeks before it can be considered safe, and in children and young adults may develop red corded scars, months after an apparently perfect take, yet it has a place in surgery that is not as well filled by other grafts.

Endo-Aneurysmorrhaphy.—Gibbon relates his experience with endo-aneurysmorrhaphy in twenty-one cases, basing his analysis as to results on only nineteen of these: six popliteal, ten femoral, two femoral and external iliac aneurysms, and one brachial aneurysm. Six aneurysms were traumatic and three of these were arteriovenous. There were three deaths following operation; one was an anesthetic death just at the conclusion of the operation; one occurred fifteen days after operation and twenty-four hours after ligation of the femoral artery for secondary hemorrhage from the site of an obliterated popliteal aneurysm. The third death was in an extremely ill, syphilitic negress with a femoral aneurysm. The sixteen patients who survived operation have nearly all been traced, and none has had any recurrence or any circulatory disturbance. In all the aneurysms due to disease of the vessel, Gibbon has done the obliterative operation. In most of the traumatic aneurysms and in the three arteriovenous aneurysms, the restorative type of operation was done. In two cases of arteriovenous fistula, one of the brachial and one of the femoral vessels, the opening in the artery was closed, the vein ligated and a portion of its wall used to reinforce the closure of the artery. Gibbon uses catgut for closing the openings into the sac and for its obliteration. He never used the mattress sutures through the skin to aid in obliteration of the sac, as was suggested by Matas in his original paper, fearing that a suture passing through the skin and into the sac might be the means of causing infection.

Cirsoid Aneurysm of Scalp.—In the case reported by Elkin, the condition followed a shrapnel wound of the scalp. Harvey Cushing ligated each external carotid artery. Reflection of the scalp disclosed a cavernous angioma. Puckering of the angioma was done by multiple sutures. Replacement and suture of scalp layers completed the operation. The central lesion was subsequently irradiated to encourage endothelial destruction and thrombosis. The lesion had remained quiescent a year after the operation.

Aneurysm of Internal Mammary Artery.—In this case Rankin treated the lesion by extirpation of the aneurysmal sac. The patient made an uninterrupted convalescence and was dismissed from the hospital on the tenth day.

Aneurysm of Palmar Arch.—To the sixty-one cases of this kind on record Lyle adds one in which a cure was effected by excision of the aneurysmal sac. Summaries of all previously published cases are given. It is evident that the majority of the cases are caused by trauma with direct injury to the vessel wall. An insignificant number result from local or general pathologic disease of the vessel wall. A small group are caused by chronic irritation and repeated contusions. Two cases have been reported as being spontaneous in origin. The best treatment is an early excision of the aneurysm; this applies to both the superficial and the deep arches. As a prophylactic measure, all narrow penetrating wounds which bleed freely and are in possible relation to the palmar arches, should be explored and both ends of the artery secured.

Incidence of Cleft Palate and Harelip.—Davis gives the following figures as to incidence of lip and palate clefts. In 15,520 deliveries of negro women, seven congenital clefts of the lip and palate were found, or 1 in 1,788+. In 11,638 deliveries of white women in wards, 13 congenital clefts were found, or 1 in 895+. In 3,927 deliveries of white women (private cases), 4 congenital clefts were found, or 1 in 981+. Taking the white series together, in 15,565 deliveries, seventeen clefts were noted, or 1 in 915+; combining all cases, in 28,085 deliveries, there were 25 clefts, or 1 in 1,170. In the cases occurring in negroes, in which all conditions were most unfavorable, congenital clefts of the lip and palate occurred comparatively much less often than in the two white women's groups (ward and private). Clefts occur in the white public ward cases (1-895+) more frequently than in the private ward cases (1-981+). Environment and social status are apparently of little importance. More than half the clefts were in first children. Associated anomalies occurred in 25 per cent. of the cases.

End-Results of Goiter Operations.—Ochsner presents an analysis of 500 replies to questionnaires in cases of toxic and exophthalmic goiter. Twenty-five per cent. of the patients still suffer to some extent from tachycardia, or some other form of cardiac disturbance. One per cent. had some disturbance of the voice for a time, which has, however, completely disappeared; in one patient, voice disturbance has persisted to some extent. There was a recurrence of the goiter in 7 per cent. of the cases, and all of these had returned to their former mode of living, including the drinking of unboiled water. Exophthalmos persisted in 9 per cent. of the cases. Three patients died within one year after the opera-

tion. Twelve died from two to nine years after the operation from diseases not connected with their goiters. Aside from these eight cases, 1.6 per cent. of all patients were worse after the operation than before. All of the cases that Ochsner had an opportunity to examine personally showed a marked improvement over their preoperative condition even in the presence of some unfavorable symptoms, but this may have been simple coincidence, and may not hold true for those not personally examined.

End-Results of Goiter Operations.—Dowd analyzes his results in the treatment of 150 goiter patients as follows: enjoying good health and able to do at least the ordinary amount of work, 103; able to enjoy life and do moderate work, but carefully avoiding overexertion, 32; persistent invalidism, 1; died since leaving hospital, 4; died in hospital, 5; not traced, 5. Acute hyperplastic thyroids have given the most severe symptoms, but toxic adenomas have sometimes been almost as serious. Adenomas and so-called colloid goiters have sometimes given distressing symptoms from pressure and unsightliness. Some patients have improved under rest and medicinal treatment and the use of the roentgen ray, but so many failures have been noted in these forms of treatment that operation is believed by Dowd to be the best form of treatment for a very large proportion of patients with goiter.

Carcinoma of Breast.—Lee and Cornell made a study of eighty-seven presumably primary operable cases of carcinoma of the breast, seventy-five of which have been followed through sufficiently to furnish accurate data concerning the five-year results obtained. The results are: alive and with no evidence of recurrence, ten patients; died without recurrence more than five years after operation, one patient; died with recurrence, fifty-four patients, and, recurrence, but not completely traced, ten patients. Of the entire eighty-seven cases a positive or negative statement concerning a definite history of trauma was made by fify-five patients. It was positive in fifteen of these cases. The traumatizing agent varied from blows or falls on the breast to corset pressure, and one patient made the statement that she had been accustomed for years to stick pins into the part of the breast which subsequently became the seat of cancerous disease. Five women had previously suffered from abscess of the breast. No statement concerning previous lactation was made in fifteen instances. Of the remaining seventy-two patients, exactly one half had a history of previous lactation. It seems reasonable to conclude that prior lactation is not an important factor in the development of mammary cancer. In eighty-one cases, the left breast was involved in forty-three instances and the right breast in thirty-eight. The scirrhus type of carcinoma predominated.

Diverticulitis of Colon.—The clinical history of 118 cases of benign diverticulitis of the colon is analyzed by Judd and Pollock. The mortality from radical operations for diverticulitis has been very high. The difficulty in these cases has arisen from stirring up the infection that existed in the tissues around the colon before the operation. It seems to the authors, from a review of the results in these cases, that the plan of procedure should be a preliminary colostomy for the purpose of caring for any obstruction in the colon, and particularly the reduction of the inflammation in the diverticula by frequent irrigations of the lower colon. Resection of the infected portion can then be made with less risk.

Carcinoma of Colon.—Peck's report is based on a study of sixty-nine cases of carcinoma of the colon excluding the rectum. He tries to demonstrate the fact that carcinoma of the colon compares favorably with malignant disease elsewhere in percentage of operability and in favorable results, both immediate and late, following radical operation.

Multiple Primary Cancer of Colon.—Five cases form the basis of Miller's paper. He says that it must be recognized that cancer of the colon may occur as multiple primary lesions, that an entirely similar picture may be produced by tumors which develop secondary, and that polyposis of the colon has a very definite tendency to malignant degeneration.

Late Closure of Artificial Anus.—In Eliot's case, the patient had developed an artificial anus following an operation for the relief of an infected appendix. A fecal fistula had developed. The patient, about 60 years of age, had for many years been an incurable paranoiac and required the constant attention of two nurses. The occasional fecal discharge through the abnormal opening did not cause the slightest perceptible annoyance or discomfort. While closure would have been attempted in an otherwise normal subject, the fact that such a procedure, if successful, would, in the case of an incurable paranoiac, have neither added to her comfort nor have removed the need of constant nursing, seemed to justify a laissez-faire policy. After several years, prolapse appeared. After a time, however, the prolapse, always reducible, became more complete until finally, seven years after the original operation, it formed a voluminous mass, balloon shaped, bulging over the side of the patient for a distance of at least 12 inches, consisting evidently of the entire ascending colon. When reduced every contrivance failed to prevent its spontaneous return. Its resection seemed justifiable. Digital examination disclosed a tonic rectal sphincter. Enemas were expelled. A small quantity of an analine dye, administered under low pressure in a colon irrigation, appeared at the artificial anus. The terminal ileum, the entire ascending and several inches of the transverse colon were resected through an incision inclosing the former operative scar and the artificial anus, followed by a lateral anastomosis. Peristalsis was quickly reestablished, gas being passed per rectum at the end of the first twenty-four hours. The bowels moved naturally on the second day without enema or drip. The first formed movement occurred one week after operation and afterward the consistency varied.

Archives of Dermatology and Syphilology, Chicago

10: 409-536 (Oct.) 1924

*Prophylaxis of Syphilis with Arsphenamin, Neo-Arsphenamin and Sulpharsphenamin. S. S. Greenbaum and M. J. Harkins, Philadelphia.—p. 409.
*Value of Bismuth in Syphilis. C. H. de T. Shivers, Atlantic City, N. J.—p. 414.
*Postmortem Findings in Spinal Cord in Chronic Pemphigus. W. M. Kraus, New York.—p. 424.
Verruca of Nail Fold. D. W. Montgomery and G. D. Culver, San Francisco.—p. 425.
*Is Dandruff Seborrheal? R. H. Rulison and W. J. Highman, New York.—p. 429.
Precipitation Test on Spinal Fluid in Syphilis. O. Ishii, New York.—p. 442.
*Yaws in Missouri. L. D. Cady and M. F. Engman, St. Louis.—p. 446.
Syphilis at Washington University Dispensary. R. S .Weiss and A. H. Conrad, St. Louis.—p. 453.
*Immunity in Ringworm Infections. II. Active Induced Immunity. S. S. Greenbaum, Philadelphia.—p. 462.
*Treatment of Common Warts by Neo-Arsphenamin. H. C. L. Lindsay, Vaucouver, B. C.—p. 471.
Itch Mite and Its Burrow. D. W. Montgomery, San Francisco.—p. 473.
Chronic Itching Papular Eruption of Axillae and Pubes (Fox and Fordyce). F. C. Knowles and P. Hart-Drant, Philadelphia.—p. 478.
*Congenital Ichthyosiform Erythroderma. U. J. Wile, Ann Arbor, Mich.—p. 487.
*Duodenal Lavage in Treatment of Jaundice Complicating Treatment for Syphilis. L. F. X. Wilhelm, Rochester, Minn.—p. 499.
*Mercurial Eruptions. C. S. Wright, Philadelphia.—p. 507.
*Treatment of Ivy Poisoning by Rhus Tincture and Antigen. C. W. Willams and J. A. MacGregor, New York.—p. 515.

Prophylaxis of Syphilis.—The effects of the arsphenamins in doses equivalent to the adult human dose, under the same time conditions and in rabbits known to be definitely infected with *Spirochaeta pallida*, were studied by Greenbaum and Harkins. The equivalent adult human single dose of neoarsphenamin, that is, 0.9 gm., did not prevent the development of syphilis even when given as early as three hours after the animal had been infected, but three similar doses given as late as twenty-four hours apart did prevent it. The equivalent adult human dose of arsphenamin, that is, 0.6 gm., did not prevent the development of syphilis even when given as early as three hours after infection, but three similar doses as late as twenty-four hours apart did prevent it. The results obtained with sulpharsphenamin were similar to those obtained with neo-arsphenamin.

Value of Bismuth in Syphilis.—Shivers asserts that bismuth should not be substituted for arsenic in primary or secondary syphilis, except in patients resistant to arsenical treatment. Bismuth is effective, clinically, in the treatment of all forms of tertiary syphilis. In the treatment of neurosyphilis, bis-

muth in some cases has proved itself superior to arsenic. Bismuth should be tried in all patients that do not tolerate the arsenicals. Bismuth should be given with caution in all patients with faulty elimination. The absorption of this drug should be studied carefully, and if possible, the number of treatments given should depend on the roentgenologic findings.

Pathology of Spinal Cord in Pemphigus.—No pathologic changes were found by Kraus in the nerve cells, connective tissue cells, blood vessels, roots or meninges in the sections examined, at the cervical, thoracic and lumbar levels in two cases.

Dandruff Is Not Seborrheal.—Rulison and Highman believe that dandruff is not essentially seborrheal; that the combination of seborrhea and dandruff is not so common as to warrant the present classification; that the old pityriasis group should be restored to its original and independent status; that the definition of seborrhea should be standardized, and that the use of the adjective seborrheal should be confined to conditions in which seborrhea is essential—not incidental to the morbid picture.

Yaws in Missouri.—Cady and Engman describe a case of yaws occurring in a young negro who probably became infected while in St. Louis, possibly from his work or from his mistress. Biologic and microscopic studies were made from an excised lesion. The patient promptly recovered under neo-arsphenamin therapy.

Immunity in Ringworm.—Greenbaum found that in superficial ringworm infections of guinea-pigs and human beings, the injection of phytins (culture filtrates of fungi) produces no focal reactions indicative of antibody production. In one form of superficial ringworm infection in the human being, the injection of neophytin produced a focal reaction indicating the presence of some degree of antibody production. In guinea-pigs, six injections of nonneutralized neophytin, in doses of 0.5 c.c. each, shortened the duration of the experimental infection and hastened the degree of spontaneous recovery. In their present unmodified state, the neophytins cannot be used in human beings, with prophylaxis or therapeusis in view.

Neo-Arsphenamin for Warts.—Lindsay believes that there are many cases of warts in which the intravenous injection of neo-arsphenamin is justifiable in the hope of accomplishing by intensive arsenical treatment what may not be possible with milder forms of arsenic. He cites a case of multiple warts of the scalp treated unsuccessfully with various therapeutic methods, including the roentgen ray, fulguration and mercury (the latter both externally and internally) in which an intravenous injection of 0.6 gm. of neo-arsphenamin caused all the lesions to disappear, although there was a slight recurrence at the end of three weeks. A second similar injection was followed by permanent recovery.

Congenital Ichthyosiform Erythroderma.—Wile describes three cases of congenital ichthyosiform erythroderma of an unusual type. Clinically they were characterized not by true ichthyosis, but by a scarlatinal form of exfoliation. Histologically, they were characterized by acanthosis, fragmentation and disorganization of the elastica of the upper layers of the cutis. The group was further characterized by a striking history of consanguineous marriage as probably the predisposing factor of a recessive type of inherited dystrophy. The affection having occurred exclusively in the male children, indicates that the group is an example of sex limitation in recessive inheritance. The histologic similarity of the cases to the fundamental changes of epidermolysis bullosa of the dystrophic form, together with the fact that both diseases are recessive in their inheritance, suggests a close relationship between the two.

Duodenal Lavage for Jaundice Complicating Syphilis.—Thirty-three patients were treated by Wilhelm by duodenal lavage, thirty (90 per cent.) of whom recovered definitely and rapidly following this procedure. A maximum of eight lavages, and an average of two, was necessary for relief. The average duration of toxic manifestations was from ten to twelve days. These cases tend to show that arsenic is not necessarily the etiologic agent that produced this type of jaundice.

Mercurial Eruptions.—Wright directs attention to the fact that mercury may call forth almost as many cutaneous reactions as arsphenamin, and it is well to bear this in mind when a patient receiving mixed treatment develops an eruption, for it may be due to either drug or to the combination. Eruptions may result either from external application or internal administration. They may be due to an idiosyncrasy on the part of the patient or may occur as a part of a general mercurial intoxication resulting from too prolonged use or overdosage of mercury. Cessation of the drug usually results in disappearance of cutaneous manifestations.

Treatment of Ivy Poisoning.—Strickler's method of treatment of ivy poisoning by the internal administration of tincture of rhus and the intramuscular injection of an antigen prepared from the plant was used by Williams and MacGregor in twenty-six cases. Fifteen patients showed definite improvement after the first dose; in five, the inflammation seemed to be checked by the first dose, and definite recession of symptoms occurred after the second; in five cases, improvement began after the second dose; while in only one was no improvement observed until after the third dose. The most striking feature was the rapid improvement, usually after a single dose, which was observed in early and in late cases, in mild and especially in severe cases, some of which had been treated without success by other methods.

Boston Medical and Surgical Journal

191: 569-616 (Sept. 25) 1924

*Relation of Medical to Surgical Treatment of Gastric and Duodenal Ulcer. F. H. Lahey and S. M. Jordan, Boston.—p. 569.
Medico-Social Aspects of Heart Disease. B. L. Russell, Boston.—p. 573.
Treatment of Peroneal Spasms. L. A. O. Goddu, Boston.—p. 580.
*Rabies. G. H. Bigelow and W. G. Webber, Boston.—p. 582.
Progress in Surgery. J. S. Hodgson, Boston.—p. 585.

Treatment of Gastric Ulcer.—Lahey and Jordan emphasize the desirability of exhausting the possibilities of adequate medical measures for gastric and duodenal ulcers before submitting them to surgery. Preliminary medical management with rest in bed makes operation safer and easier in many cases later to be submitted to surgery.

Rabies in Massachusetts.—The history of the spread of rabies in Massachusetts shows that it is the stray dog that is responsible for the spread. In that state the number of reported rabid animals has increased 1,000 per cent. in eight years. Bigelow and Webber show that the rabies problem would be solved by the elimination of the stray, i. e., unlicensed, dog, and strict zone quarantining of dogs when a case of rabies appears. Rabies then will remain in a community as long as and no longer than a community wills it, and it is strictly a community responsibility.

Georgia Medical Association Journal, Atlanta

13: 377-422 (Sept.) 1924

Care of New-Born. O. R. Thompson, Macon.—p. 377.
*Renal Tuberculosis with Increased Function. W. L. Bazemore, Macon.—p. 383.
Preeclampsia State. H. M. Hall, Cedartown.—p. 385.
Care of Infant. R. C. Maddox, Rome.—p. 388.
Surgical and General Diagnosis. J. T. McCall, Rome.—p. 390.
Treatment of Eclampsia. C. Van Wood, Cedartown.—p. 391.
Chromocystoscopy. F. C. Nesbit, Atlanta.—p. 392.
Prostatitis. Y. C. Lott, Albany.—p. 393.
*Sarcoma of Spleen. B. T. Beasley, Atlanta.—p. 395.
Typhoid in Children. L. F. Lanier, Rocky Ford.—p. 399.

Renal Tuberculosis with Increased Function.—The two cases reported by Bazemore show that a kidney which is tuberculous may have a better function than its nontuberculous and probably normal mate, and yet at the same time this is no argument against not removing it; in fact when such a condition exists, it is all the more reason for removing it, because the excellent function means early tuberculosis, and the early removal of a tuberculosis process offers much better chances for complete cure than the removal of an advanced process.

Sarcoma of Spleen.—Beasley reports a case of sarcoma of the spleen occurring in a child, 1 year of age. The first symptoms noted were indigestion, vomiting and diarrhea. Then the child became anemic. Finally, a mass was felt 1 inch

below the ensiform. Ten days later, the mass was much larger and the baby was more emaciated and showed greater weakness. Exploratory laparotomy disclosed a tumor of the spleen. A section was taken and the wound closed. The patient died seven hours later. Examination of the tissue removed showed it to be a large round cell sarcoma.

Johns Hopkins Hospital Bulletin, Baltimore

35: 265-304 (Sept.) 1924

Use of Intarvin Fat in Diabetes Mellitus. C. S. Keefer, W. A. Perlzweig and W. S. McCann, Baltimore.—p. 265.
Congenital Arteriovenous Fistula. W. F. Rienhoff, Jr., Baltimore.—p. 271.
*Xeroderma Pigmentosum. A. R. Rich, W. C. Davison and C. H. Greene, Baltimore.—p. 285.
*Acute Disseminated Lupus Erythematosus. C. S. Keefer and A. R. Felty, Baltimore.—p. 294.
*Healing of Rickety Bones in Vitro. P. G. Shipley, Baltimore.—p. 304.

Xeroderma Pigmentosum.—A case of xeroderma pigmentosum is described clinically and pathologically by Rich, Davison and Greene. Radium exerted no permanent beneficial effect on the disease. The various forms of the skin lesions are described and discussed.

Acute Disseminated Lupus Erythematosus.—Three fatal cases of "acute disseminated lupus erythematosus" are reported by Keefer and Felty. In two cases the pathologic findings are described. The clinical features were quite similar in all three cases. The syndrome presents rather a distinct entity as far as clinical observation is concerned. Pathologically, the only constant feature common to both of the cases coming to necropsy was small groups of tuberculous lymph glands. No extensive tuberculous lesions were found. In one case, tubercle bacilli of the human type were recovered from a lymph gland which did not show the histologic lesion characteristic of tuberculosis.

Healing of Rickety Bones.—Shipley states that if an isolated piece of bone of a live rachitic rat be placed in serum or plasma taken from normal animals, or from those with rickets in the process of cure, calcification begins in the bone in forty-eight hours. This reparative process is made evident by the formation of a provisional zone of calcification in the cartilage of the bone and by the deposition of lime salts in the metaphysis. These new deposits of calcium are apparently similar to those which are found in bones taken from the bodies of rats with healing rickets. In other words, the normal process of calcification which was in abeyance in the body from which they were removed seems to have been resumed in these bones, as the result of contact with normal serum. The reformed provisional zone of calcification of the cartilage in these extirpated bones is morphologically identical with that which is formed when healing occurs in the body of an intact animal. The new epiphyseodiaphyseal line is regular and bears the same relation to the cartilage mass, the individual cells, and to the metaphysis which it would have had if it had been formed in normal relation to an intact system of blood vessels and nerves. This would seem to indicate that the calcification of cartilage and bone depends, in part at least, on the exercise of cellular acitvity as well as on the composition of the tissue humors and that it may be more or less independent of the arrangement of the local blood vessels.

Journal of Bacteriology, Baltimore

9: 409-512 (Sept.) 1924

*Antigenic Relationships of Bact. Typhosum. II. Complement Fixation. E. S. Robinson, New Haven, Conn.—p. 409.
Cultivation of Microbes in Agar Cylinders in Peritoneal Cavity of Animals. J. Ørskov, Copenhagen.—p. 427.
Biology of Sewage Disposal: Bacteriologic Flora of Sewage Treatment Plant. M. Hotchkiss.—p. 437.
Id.—Sprinkling Filter Bed; Its Bacteriologic Population. M. Hotchkiss.—p. 455.
Chemical Mechanism of Bacterial Behavior Toward Dyes. E. W. Stearn and A. E. Stearn, Columbia, Mo.:
I. Factors Controlling Gram Reaction.—p. 463.
II. New Theory of Gram Reaction.—p. 479.
III. Problem of Bacteriostasis.—p. 491.
Heating to Facilitate Measurement of Precipitates. J. Broadhurst, New York.—p. 511.

Antigenic Relationships of Bacterium Typhosum.—By testing 118 strains of *Bacterium typhosum* with nine serums in complement fixation tests, antigenic differences in these strains were clearly brought out by Robinson. The complement-fixation test, if carried out with appropriate serums, offers a simple method of identifying "inagglutinable" or "atypical" strains of *Bacterium typhosum.*

Journal of Immunology, Baltimore

9: 339-449 (Sept.) 1924

Cellular and Humoral Theories of Anaphylaxis and Similar Processes. I. L. Kritchevsky and O. G. Birger, Moscow, Russia.—p. 339.
Nature of "Cohesive Factor" in Spontaneous Agglutination of Bacteria. R. R. Meilon, W. S. Hastings and C. Anastasia, Rochester, New York.—p. 365.
Biochemical Index of Various Races in East Indian Archipelago. W. J. Bais, Pematangsiantar, Sumatra, and A. W. Verhoef, Medan, Sumatra.—p. 383.
*Pulmonary Circulation in Anaphylactic Shock. C. K. Drinker and J. Bronfenbrenner, Boston.—p. 387.
Existence of a Third Iso-Agglutinin. L. Lattes and A. Cavazzuti.—p. 407.
Study of Serum of Rabbits Immunized Against Globulins from Human Serums. A. D. Dulaney and J. H. Jennett, Columbia, Mo.—p. 427.
Agglutination of Bacillus Diphtheriae. D. G. Doyle, San Francisco.—p. 443.

Pulmonary Circulation in Anaphylactic Shock.—Drinker and Bronfenbrenner found that in rabbits anaphylactic shock has as its principal manifestation a constriction of the pulmonary blood vessels. This reaction varies in degree in different animals. The authors have seen it last over an hour; they have seen it kill with the rapidity of extensive pulmonary embolism. Of eleven sensitized animals none failed to produce the reaction. In cats pulmonary vascular constriction occurs during anaphylactic shock but it is of low grade. In dogs pulmonary vascular phenomena are absent in shock. The empirical application to monkeys of methods of sensitization and examination used for other animals produced negative results.

Journal of Laboratory and Clinical Medicine, St. Louis

9: 803-886 (Sept.) 1924

*Splenomegaly with Hyperleukocytosis. M. E. Alexander, Waterbury, Conn.—p. 803.
*Action of Quinidin on Amphibian Heart. J. A. Waddell and M. Cohen, Charlottesville, Va.—p. 821.
Wassermann Test in Rabbit Syphilis. D. W. Heusinkveld and P. H. Carroll, Madison, Wis.—p. 834.
Gas Flame in Adjustment of Reaction of Sterile Solutions. S. T. Woo, and O. H. Robertson, Pekin, China.—p. 840.
Elements of Choice in Photomicrography of Stained Microscopic Sections. N. C. Foot, Cincinnati.—p. 843.
Controlling Kymograph Rate. P. D. Lamson.—p. 858.
*Determination of Blood Urea by Folin-Wu Method. S. L. Johnson, Baltimore.—p. 860.
Limitations of Use of Solid Mediums for Detection of Gas Production by Bacteria. L. O. Dutton, Memphis.—p. 863.

Splenomegaly with Hyperleukocytosis.—A case of "splenomegaly with hyperleukocytosis" is reported by Alexander. A detailed postmortem study of this case showed it to be an atypical form of myelogenous leukemia. An analysis of the cases of splenomegaly with hyperleukocytosis recorded in the literature leads the author to believe that there is no justification from the findings in these cases to consider them as a new clinical entity which has not been described previously. The cases are atypical forms of myelogenous leukemia.

Action of Quinidin on Heart.—Waddell and Cohen believe that quinidin produces its effects through action on the musculature of the heart, including that of the conducting system. With moderate dosage, there is no evidence of permanent tissue damage, all effects being abolished by withdrawal. Quinidin seems to be a physiologic depressant, analogous to ether on the brain and cocain on the nerves.

Modification of Folin-Wu Method.—A simple modification of the blood urea method of Folin and Wu is described by Johnson which has been found to do away with reverse aspiration of the filtrate.

Journal of Urology, Baltimore

12: 193-294 (Sept.) 1924

*Bilateral Ectopic Kidneys. H. L. Darner, Baltimore.—p. 193.
Radiographic Findings in Double Kidneys. H. G. Hamer and H. O. Mertz.—p. 215.
*Kinks of Ureter. I. R. Sisk, Madison, Wis.—p. 223.

*Mercurochrome by Mouth as Urinary and Intestinal Antiseptic. H. Young, W. W. Scott and J. H. Hill, Baltimore.—p. 237.
Calcification of Prostate. W. MacKenzie and M. I. Seng.—p. 243.
Suprapubic Prostatectomy. P. W. Aschner, New York City.—p. 251.
*Case of Hydrocele of Epididymis. B. A. Thomas and D. C. Thompson. —p. 271.
Urology and Syphilology. V. C. Pedersen, New York.—p. 279.
*Tallow as Nucleus in Formation of Urinary Calculus. J. F. Baldwin, Columbus, Ohio.—p. 293.

Bilateral Ectopic Kidneys.—In Darner's case the kidneys were down in the pelvis but not fused. Pelvic kidneys are usually fused. After a thorough search of the literature Darner was able to find but sixteen cases in which both kidneys were in the pelvis and not fused. The other interesting feature of his case is the fact that the bilateral masses which were palpable on vaginal examination were wrongly interpreted as inflammatory tubo-ovarian masses. The clinical diagnosis seemed additionally verified by the frequent exacerbations of the infection.

Kinks of Ureter.—Sisk reports four cases of kinks of the ureter which did not cause much dilatation of the pelvis or calices of the kidney. For the purpose of bringing them out, he says it is advisable to inject a medium through the ureteral catheter, the point of which is below the kinked portion of the ureter.

Mercurochrome by Mouth.—Sufficient evidence has been secured to convince Young et al. that mercurochrome given by mouth is innocuous, that it causes little or no gastro-intestinal disturbances until it has been taken in big doses for a week or more. In a dosage of 900 mg. of mercurochrome daily, the urine shows colorimetrically a dilution of between 1:30,000 and 1:40,000 and occasionally 1:15,000 to 1:20,000 (varying according to the intake of water). At this strength urine is bacteriostatic. The stools become deeply stained, almost brick red in color, and the normal bacterial content may be greatly reduced. The few clinical trials made, indicate that a distinct germicidal effect in the urinary tract can be obtained by administering mercurochrome by mouth. The value of this method as compared with the intravenous has not yet been determined. It seems evident that this method may also have value in combating the local effects of infection in the intestinal tract and thus eliminate the cause of the urinary infection. It seems probable that mercurochrome administered by mouth may be of value in colitis and other inflammatory diseases and infections of the intestinal tract, and also, possibly, for the preparatory treatment for gastro-intestinal operations.

Hydrocele of Epididymis.—In the case cited by Thomas and Thompson four hydroceles were present at the same time, a hydrocele of the tunica vaginalis and a hydrocele of the epididymis on each side, the latter being entirely distinct from the former. The sac walls and their fluid content and their relationship to the testis and epididymis were identical on both sides, except that both hydroceles on the left side were about twice as large as those on the right. There was no assignable cause for the development of any of the hydroceles, but it is assumed that the hydrocele of the epididymis existed on account of the anatomic relation of the two layers of the tunica vaginalis to the epididymis.

Tallow as Nucleus of Bladder Calculus.—Baldwin thinks that his is the first case of this kind. A neighbor woman had advised his patient to inject melted tallow into the bladder, assuming, that it would be as soothing to the interior of the bladder as it would perhaps have been to a similarly irritated surface on the outside. The patient had acted on this suggestion, but without benefit. The tallow formed the nucleus for a stone.

Laryngoscope, St. Louis

34: 673-752 (Sept.) 1924

*Functional Tests of Hearing. I. H. Jones and V. O. Knudsen, Los Angeles.—p. 673.
Masking of Sound; Bearing on Functional Tests and Physiology of Hearing. E. P. Fowler, New York.—p. 687.
Ocular Responses to Vestibular Stimulation. E. M. Josephson, New York.—p. 704.
Tonsil Surgery. J. M. Mayer, Brooklyn.—p. 708.
What Constitutes an Ideal Tonsil Operation? S. H. Large, Cleveland. —p. 713.
Ethmoiditis with Orbital Complications in Children. W. Siegmeister, Brooklyn.—p. 717.
*Fungus on Tongue. D. MacFarlan, Philadelphia.—p. 720.
Combined Suction and Tongue Depressor. F. A. Beck, Allentown, Pa. —p. 723.
Radium Applicator for Upper Air and Digestive Passages. J. Maliniak, Cincinnati.—p. 725.

Functional Tests of Hearing.—Jones and Knudsen are of the opinion that the audio-amplifier, and other instruments for measuring auditory acuity, will serve their greatest usefulness in discriminating between correctable and incorrectable types of deafness, and in prescribing artificial aids to hearing which are designed to correct the particular defects of each individual case.

Fungus of Tongue.—MacFarlan describes a case of *Aspergillus niger* infestation of the tongue which was resistant to every treatment until the tongue was smeared with a heavy solution of glycerite of tannic acid, immediately followed by a 25 per cent. solution of silver nitrate. The silver precipitated and the tongue was blacker than ever; but in a few days the blackness was disappearing rapidly by what appeared to be a separation of the fungus from the tongue beneath. Scraping with a knife helped the removal, and another application of tannin and silver was made. Within two weeks' time the condition that had resisted treatment for two months had cleared up.

Philippine Islands Medical Association Journal, Manila

4: 251-288 (July) 1924

Anatomico-Clinical Diagnosis Based on Necropsy and Clinical Records. A. G. Sison and A. B. M. Sison.—p. 251.
*Treatment of Placenta Praevia. F. Calderon and A. Villarama.—p. 256.
Difficulties Encountered in Differentiating Lactose Nonfermenting Gram-Negative Bacilli. G. R. Lacy.—p. 264.

Treatment of Placenta Praevia.—Calderon and Villarama analyze 314 cases of placenta praevia out of 10,462 deliveries, or one case of placenta praevia for every thirty-four deliveries. The maternal death rate was 16.56 per cent.; the infantile, 67.18 per cent. Fourteen infants (4.45 per cent.) died undelivered. Thirty eight babies died after delivery. The greater number of mothers (59.61 per cent.) died from acute anemia. Fourteen were admitted in a dying condition, who were not given any treatment at all. Most of the postpartum complications belong to mild puerperal infection, the patients having recovered after routine treatment. The types of placenta praevia were: lateralis, 174 cases; marginalis, 83 cases; centralis, 50 cases; not recorded, 7 cases. Most of the fetal and maternal deaths occurred in the lateralis group. Fetal mortality for cesarean section was lowest in this series, podalic version was highest. Maternal mortality for spontaneous delivery is second to breech extraction, that is, 5.33 per cent. and 4.54 per cent., respectively. The highest maternal mortality is found in manual dilatation followed by podalic version and second comes cesarean section, namely, 30 and 28 per cent., respectively. Maternal death after cesarean section is due to profound anemia before the operation. In no case was peritonitis found to be a cause of death after the operation.

Southwestern Medicine, Phoenix, Ariz.

8: 401-460 (Sept.) 1924

Hospital Standardization from Doctor's Viewpoint. A. C. Scott, Temple, Texas.—p. 401.
Influence of Hospital Standardization on Community Welfare. F. P. Miller, El Paso, Texas.—p. 404.
Gallbladder Surgery. R. Smith, Los Angeles.—p. 406.
Fractures. A. R. Hatcher, Wellington, Kan.—p. 411.
Nervous Diseases and General Practitioner. K. A. Menninger, Topeka, Kan.—p. 417.
Dietetic Indiscretions Producing and Affecting Cardiac Conditions. E. A. Newton, Los Angeles.—p. 422.
Trachoma. J. McMullen, Phoenix.—p. 425.
Congenital Syphilis. E. R. Cox, Clifton.—p. 428.
Pathology of Psychic Impotency in Gonorrhea. R. A. Hernandez, Tucson.—p. 432.
Psychologic Action of Natural Radioactive Water of Hot Springs, Ark. M. F. Lautman, Hot Springs.—p. 435.
Blood Pressure as Related to Tuberculosis. W. H. Cryer, Deming, N. M.—p. 437.
Tendency Toward Faddism in Medicine. E. C. Prentiss, El Paso, Texas.—p. 440.
Doctor and Public. G. A. Ingalls, Roswell, N. M.—p. 446.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

21: 161-240 (July-Sept.) 1924

*Congenital Heart Disease in New-Born. S. A. Owen and A. N. Kingsbury.—p. 161.
*Blood Transfusion in Children. G. K. Cross.—p. 173.
*Spasmodic Diphtheria: Two Cases. G. W. Ronaldson.—p. 182.
*Postdiphtheritic Chorea. M. Critchley.—p. 188.
Congenital Duodenal Occlusion. J. M. Smellie.—p. 192.
Developmental Telangiectatic Hemorrhage and So-Called "Telangiectasia." F. P. Weber.—p. 198.
Distribution of Depigmented (Leukodermic) Patches of Vitiligo, When Superadded to Molelike Nevi. F. P. Weber.—p. 202.
Acute Appendicitis in Children. W. A. Thompson.—p. 207.
Amyotonia Congenita. W. G. Wyllie.—p. 213.

Congenital Heart Disease in New-Born.—According to Owen and Kingsbury, systolic murmurs of temporary duration are not very uncommon in the new-born. They have never heard a diastolic murmur in a new-born infant, nor the classical bruit of a pathologically patent ductus within the first few days of life. Infants proved subsequently to have "congenital" lesions are not born with any trace of clubbing. It is difficult to diagnose with certainty the condition of the heart failure in the new-born. It is sometimes very difficult to differentiate between such widely different clinical states as (*a*) primary heart failure, (*b*) acute bronchopneumonia without fever, in a stage so early that heart failure seems improbable, (*c*) pulmonary atelectasis, where cyanosis and rapid breathing are the chief and only signs, (*d*) cerebral hemorrhage, where cyanosis, rapid pulse and respirations predominate, (*e*) suprarenal hemorrhage, where the same signs are present, (*f*) diaphragmatic hernia associated with cyanosis and periodic dyspnea, or (*g*) where a subsequent careful necrospsy fails to show any macroscopic lesion whatever to account satisfactorily for the same clinical picture. Owen and Kingsbury have never seen a case of fibrillation in a new-born infant. If irregularity occurs, it is of the typical sinus type. In their experience premature beats are very uncommon.

Blood Transfusion in Children.—An experience of 394 simple transfusions, and 122 exsanguination transfusions, with 0.4 per cent. citrated blood injected by the syringe method, has convinced Cross of the value of this procedure. For instance, among the erysipelas cases the mortality in the nontransfused cases was 8.6 per cent.; among the transfused cases it was nil. In infants, where possible, the fontanel (superior longitudinal sinus) is the site for withdrawal, and in older children the great saphenous vein at its entry into the femoral vein. The introduction is made through a convenient vein—very frequently the great saphenous, where it passes over the internal malleolus.

Spasmodic Diphtheria.—One case cited by Ronaldson is an interesting example of a meningeal syndrome which was coincident with a diphtheritic angina. The second patient began to have convulsive seizures on the twenty-sixth day.

Postdiphtheritic Chorea.—Critchley describes a case of involuntary movements associated with polyneuritis, arising after diphtheria, which resembled in many ways the case described by Globus. These are said to be the only two cases of chorea following diphtheria on record.

British Medical Journal, London

2: 495-550 (Sept. 20) 1924

*Jaundice. J. W. McNee, H. van den Bergh and W. Wilcox.—p. 495.
Anthrax. F. W. Eurich.—p. 503.
*Urinary Sugar. F. C. Eve.—p. 504.
Diet and Public Health. J. B. Orr.—p. 504.
Errors of Diet in Urban Population. J. S. Manson.—p. 509.
Diet Control. W. G. Savage.—p. 510.
Radiotherapeutics in Dermatology. J. H. Sequeira.—p. 512.
*Alopecia Areata and Strabismus. J. G. Tomkinson.—p. 518.
*Lupus Erythematosus. W. Dyson.—p. 519.
Picric Acid Dermatitis. H. C. Semon.—p. 520.
Melena Neonatorum Treated by Injection of Paternal Blood. R. J. L. Fraser.—p. 521.

Jaundice.—Based on the view that it is the cells of the reticulo-endothelial system, especially of the spleen which elaborate bile pigment, and that the polygonal cells of the liver are chiefly concerned with its passage into the bile capillaries, a new theory of jaundice has been developed. As an explanation of the two varieties of bilirubin distinguished by the "direct" and the "indirect" van den Bergh reaction, it has also been suggested that the bilirubin in passing through the glandular liver cells is modified in some way. The following classification of jaundice is suggested: Obstructive hepatic jaundice, toxic and infective hepatic jaundice, hemolytic jaundice. All clinical varieties of jaundice can readily be made to fit into this classification. Some clinical forms must be placed in two of the divisions, as, for example, when toxic changes of the liver cells are combined with definite obstruction in the bile passages. The observations of Hijmans van den Bergh on the bilirubin in the blood, the activities of the reticulo-endothelial system in bile pigment metabolism, the results of animal experiments in relation to the occurrence of a true hemolytic jaundice, and the conception of disordered function of the glandular cells of the liver as a cause of jaundice, are all discussed.

Estimating Sugar in Urine.—The method of sugar estimation used by Eve depends on the destruction of the sugar in the urine by growing yeast, chiefly by oxidation into carbonic acid. The specific gravity of the urine after fermentation will be reduced to an extent proportional to the amount of sugar originally present. A curve is constructed and is the guide in treatment.

Familial Alopecia and Strabismus.—Tomkinson reports cases of squint occurring in two family groups. In one group the paternal grandfather, a paternal aunt, a paternal female cousin and the mother of three strabismic children all squinted. It would almost appear as if this was a heredity and of particularly potent origin, in that it was determined by combined similar paternal and maternal influences. In the second group three siblings and an aunt squited. Four members of the first group and three of the second group had at some time or another had alopecia. Tomkinson wonders whether there is a causative factor in these cases common to the two conditions, a strabismus and alopecia areata.

Lupus Erythematosus.—Of thirty-five cases seen by Dyson more than 70 per cent. reacted to either human or bovine tuberculin, and 2.8 per cent. reacted to streptococcal vaccine. The clinical type of the cases reacting to tuberculin was different from those reacting to streptococcal vaccine. He has also tested the apparently normal skin of a patient suffering from lupus erythematosus in whom he had obtained a reaction with bovine tuberculin. After four daily applications the skin showed a well marked reaction, pointing to the fact that the whole skin was sensitized to a specific toxin. This raises the question whether the sensitization is secondary to the lupus erythematosus or the lupus erythematosus is the result of sensitization from another source.

Calcutta Medical Journal

19: 1-44 (July) 1924

*Successful Cultivation of Cholera Vibrio from Cases. G. C. Maitra and J. B. Basu.—p. 1.
Insulin. S. C. Sen-Gupta.—p. 11.
Lethargic Encephalitis. S. C. Mitra.—p. 19.
Case of Lethargic Encephalitis. S. C. Sen-Gupta.—p. 26.

Cultivation of Cholera Vibrion.—The technic employed by Maitra consisted in picking up a small fragment of mucus on a sterile platinum loop and making a series of parallel strokes on a plate each of McConkey agar and ordinary agar. The plates were incubated at 37 C. for twenty hours and were then examined for suspicious colonies. Cholera colonies on ordinary agar were of good size and appeared as bluish, translucent, shining disks, while those of cholera-like vibrios had a certain amount of opacity about them. But often they looked so much alike that the serum reaction alone could readily distinguish the one from the other. The colonies of other bacteria in the stool were very opaque and did not present much difficulty in distinguishing them from the vibrion colonies. The vibrion colonies on the McConkey medium grew poorly and appeared as disks of dull bluish hue with an amount of relative transparency which was not at all impressive. The results of examination of 200 samples of stool from 200 cases are summarized.

China Medical Journal, Shanghai

38: 617-708 (Aug.) 1924

Morbid Histology of Pneumonic Plague. A. Fujinami, Kyota and W. Lien-Teh.—p. 617.
*Fat, Lactose and Protein Content of Chinese Women's Milk. E. Tso.—p. 626.
Chemical Purity of Carbon Tetrachlorid. J. Cameron.—p. 633.
Chinese Materia Medica (Vegetable Kingdom). B. F. Read.—p. 637.
*Thymus Gland in Chinese. J. L. Shellshear.—p. 646.
Urinary Retention in Pregnancy: Retroflexion of Uterus. G. T. Tootell.—p. 661.

Composition of Chinese Women's Milk.—A study made by Tso of eighty-seven samples of Chinese women's milk shows that its percentage composition differs in no essential respects from the composition of human milk in other races.

Thymus in Chinese.—In the Chinese the thymus gland is of large size up to the age of 20. The large size is due to thymic tissue. Shellshear asserts that his study shows that the thymus gland is later in undergoing its involution changes than it is in the European. The problem is to determine whether the delay in thymus involution is a normal, physiologic, and, therefore, anthropologic, condition in the Chinese.

Glasgow Medical Journal

20: 137-207 (Sept.) 1924

Diagnosis of Obscure Pyrexias. A. Patrick.—p. 137.
Urea Concentration Test. (To be Cont'd.) K. O. Robertson.—p. 148.
Case of Pulmonary Syphilis. W. R. Snodgrass.—p. 170.

Journal of Tropical Medicine and Hygiene, London

27: 235-246 (Sept. 1) 1924

*Histopathology of Yellow Fever. W. H. Hoffman.—p. 235.

Histopathology of Yellow Fever.—Studying the organs of more than thirty cases of human yellow fever several new anatomic symptoms have been found by Hoffmann: (1) Presence of lime casts in the nephrotic kidneys, especially in the contorted tubules and Henle's loops. (2) Erythrophagocytosis in liver (Kupffer cells), spleen and lymphodes, probably the cause of a hematogenic jaundice. (3) Hyaline degeneration of Zencker in the voluntary muscles and the myocardium. (4) Medullary infiltration of solitary follicles and Peyer's patches of the intestines. One of these lesions, the presence of lime casts in the kidney, may be one of the most characteristic signs for the postmortem diagnosis of yellow fever in doubtful cases, because it is not found in similar diseases. As the two causative agents of Weil's disease and yellow fever are morphologically indistinguishable, so there is also a similarity between the anatomic lesions in man in both diseases. The difference is only a gradual one and limited essentially to liver and kidney. It seems that the toxins of the yellow fever spirochete are stronger and, therefore, in yellow fever the anatomic degenerative lesions in these two highly susceptible parenchymatous organs are found to be more advanced in the average fatal cases of yellow fever and apparently less disposed to a successful reparation, as it occurs more frequently in Weil's disease.

Lancet, London

2: 583-634 (Sept. 20) 1924

*Evolution of Pupillary Reactions. E. T. Collins.—p. 583.
*General Paralysis and Somatic Syphilis. P. M. Bigland, G. A. Watson and A. D. Bigland.—p 588
*Blood Plate Counts in Pulmonary Tuberculosis. R. G. Bannerman.—p. 593.
*Blood Platelets in Anemia and Acute Diseases. G. J. Crawford.—p. 595.
*Hop Dermatitis. W. J. O'Donovan.—p. 597.
*Vitamin A Content of Vegetable Oils. A. D. Stammers.—p. 598.
*Kahn Test in General Paralysis. J. S. Dudgeon.—p. 599.

Evolution of Pupillary Reactions.—Collins discusses the development of muscle fibers of the iris, direct response of iris muscle to light in some cold-blooded vertebrates, pupil reaction of fishes, contraction of iris in mammals, which is said to be a reflex act; the long course of fibers supplying dilator muscle of iris, dilatation of pupil from emotional and sensory stimuli, antagonism between sphincter and dilator fibers, consensual reaction in relation to binocular vision, reaction of pupils in association with accommodation and convergence, evolution of nucleus of the third nerve, and centers for convergence and divergence.

General Paralysis and Somatic Syphilis.—An investigation was made by Bigland and Watson to determine, if possible, what it is that in a relatively small number of cases causes *Spirochaeta pallida* to invade the nervous system. First an analysis was made of 2,622 new records among which there were 529 cases of general paralysis. All the cases had been proved by examination of the brain to be undoubted cases of general paralysis, and in several the spirochete had been demonstrated in the brain substance. Tuberculosis was also present in 129 of 407 cases reviewed. The evidence obtained in these cases of general paralysis shows that somatic lesions do occur in general paralysis, that these are by no means slight, and that they differ in no marked respect from those found in syphilitic cases in general hospitals. The incidence of syphilis among the general population was approximately 10 per cent. Among asylum inmates it was 23.6 per cent. The somatic lesions in general paralysis appear to differ in no essential particular from those found in any other form of syphilis, and therefore this fact may be taken as militating against the neurotropic theory of the disease. Support of the defective durability theory is gained by consideration of the family history of general paralytics in respect of hereditary mental weakness, by the death incidence tables of Bolton, and by instances of several members of the same family infected by different persons, all developing the same type of parenchymatous neurosyphilis. If not for this theory, at any rate against the neurotropic school, is the comparative rarity of conjugal general paralysis and tabes. The evidence concerning syphilis in China and Persia, the examples of dementia paralytica and tabes contracted by different persons from the one source, and the bacteriologic evidence, such as it is, favor the neurotropic school. The authors are of the opinion that the weight of the evidence is in favor of the defective durability hypothesis whether or not a neurotropic strain of spirochete exists.

Blood Platelets in Pulmonary Tuberculosis.—Bannerman has found that in pulmonary tuberculosis—a chronic disease—the tendency is to thrombocytosis. The blood plates are generally present in excessive numbers in active pulmonary tuberculosis, and broadly speaking the more serious the clinical condition the greater is the degree of thrombocytosis. More prolonged observation is required to determine the more precise relations between thrombocytosis and the stage of the disease, but it is already apparent that there is no necessary correspondence between the number of plates and such features as pyrexia, the anatomic extent of the disease, or the presence of tubercle bacilli in the sputum. It appears rather that there exists an inverse relation between thrombocytosis and the patient's resistance to the disease.

Blood Platelets in Anemia.—A considerable diminution in the platelet count was found by Crawford in pernicious anemia, lymphatic leukemia, and purpura hemorrhagica, whereas an increase in these elements of the blood was noted in lymphadenoma and myelogenous leukemia. In those cases of secondary anemia examined, normal or slightly increased counts were obtained. Generally speaking, an increase of platelets would seem to be associated with a hyperactivity of the bone marrow and vice versa, suggesting that the platelet originates in this portion of the hematopoietic system. In one case examined, splenectomy resulted in a very considerable increase in the platelet count. An increased bleeding time is associated with a low platelet count. No correlation could be made out between bleeding time and coagulation time.

Hop Dermatitis.—In a characteristic case of plant poisoning, the hands, face and genitals are covered with closely placed minute vesicles and bullae on an erythematous base. There is often considerable tumefaction. The eruption is often mistaken for erysipelas, but its appearance in gardeners, O'Donovan says (amateurs or professional), should lead to careful inquiry as to the possibility of plant poisoning.

Vitamin A in Vegetable Oils.—Experiments made by Stammers with two samples of maize oil, one crude and rancid and one refined, indicate that the vitamin A content is high. It compares very favorably with palm oil and with winter

butter fat. During the second experiment a concurrent test on cod liver oil was being carried on, and the growth from this sample of maize oil showed some superiority to that obtained from the fish oil.

Kahn Test in General Paralysis.—The Kahn test was applied by Dudgeon to ninety-three bloods from cases of general paralysis. The test was positive in eighty-three, doubtful in one. The Wassermann test was positive in eighty-three, doubtful in five. Dudgeon regards the Kahn test as being a good confirmatory test and an excellent routine test for an institution.

Medical Journal of Australia, Sydney

11: 213-238 (Aug. 30) 1924

Health Insurance in England. A. Cox.—p. 213.
Cancer Treatment. H. M. Moran.—p. 217.
Cancer Treatment. E. H. Molesworth.—p. 220.
Cancer Treatment. B. J. M. Harrison.—p. 222.
*Large Left Inguinal Hernia. J. B. Nash.—p. 227.

2: 239-246 (Sept. 6) 1924

Gynecologic Impressions. W. G. H. Cuscaden.—p. 239.
Local Anesthesia in Surgery. L. Doyle.—p. 240.
Obstetrics Abroad. H. S. Jacobs.—p. 241.
Venereal Disease in Other Countries. D. Rosenberg.—p. 245.

Large Left Inguinal Hernia.—In the case cited by Nash, the liver and stomach were prolapsed to the right iliac and suprapubic abdominal areas. The spleen and left kidney were ptosed to the iliac crest and the iliac region. The opening into the hernial sac was above Poupart's ligament from the symphysis to the left anterior superior iliac spine. The scrotal coverings were pushed down to a transverse line joining the upper limits of the patella, the distance from the upper edge of the symphysis pubis to the lowest point being 30 cm.; laterally the hernia covered the inner third of the right thigh and the inner two-thirds of the left thigh, the circumference at its greatest diameter, 15 cm. below the upper edge of the symphysis, being 62.5 cm. The projections of the dartos were the dorsum of the penis, the right testicle, the left testicle and a hydrocele of the left tunica vaginalis. The contents of the peritoneal sac were the omentum and coils of bowel. In these coils peristalsis was taking place and the contained gas was moving freely inward and outward through the neck of the sac.

Sei-I-Kwai Medical Journal, Tokyo

43: 1-36 (Aug.) 1924

Acid Fermentation of Food as Cause of Dental Caries. T. Okumura.—p. 1.
Renal Activity. (1). Compensatory Function of Kidney. K. Kawai.—p. 32.
*Case of Lymphosarcomatosis Systematica. R. Nishii.—p. 34.

Lymphosarcomatosis.—In Nishii's case there was a marked lymphoid hyperplasia in the lymph glands and other lymphoid tissue but no leukemic change in the blood.

South African Medical Record, Cape Town

22: 367-390 (Aug. 23) 1924

Work at General Clinic. A. Pijper.—p. 369.
Insulin. F. A. Saunders.—p. 372.
*Infections Probably Due to Local Lesions of Upper Respiratory Tract. C. E. Jones-Phillipson.—p. 377.
Theory of Accommodation. G. Johnson.—p. 382.

Infected Tonsils and Secondary Infections.—In his review of the subject of local infections Jones-Phillipson emphasizes the fact that the tonsils of patients suffering from ulcer of the stomach and arthritis commonly harbor streptococci, and in animals which are injected with a culture from these the infection tends to localize in the mucous membrane of the stomach and in the joints, and produces respectively ulceration and arthritis, which is not true of the streptococci in the tonsils of normal persons.

Bulletin Médical, Paris

38: 1061-1088 (Sept. 27) 1924

*Nature of Cancer. G. Roussy.—p. 1067.
*The Microscope in Prognosis of Cancer. R. Leroux.—p. 1070.
*Serologic Tests for Cancer. E. Peyre.—p. 1072.
Radiotherapy of Cancer. S. Laborde.—p. 1076.

Nature of Cancer.—Roussy reviews the arguments advanced to explain cancer as of embryonal, microbian, parasitic or cellular origin, but he adds that the present trend is to regard it as something biologically different from any other known morbid process.

The Microscope in the Prognosis of Cancer.—Leroux relates that signs of disintegration of connective tissue and vessels in the stroma of a cancer were always found pronounced in the more rapidly destructive cancers. When scraps from the cancers failed to show this disintegration, the cancers generally yielded to roentgen-ray treatment or operation without recurrence.

Serodiagnosis of Cancer.—Although Peyre admits that none of the biologic tests are specific or reliable, yet some light may be thrown on the diagnosis by a skin test with defibrinated corpuscles, tests for antitrypsin potency, and the Botelho accelerated iodin precipitation test.

Bulletins de la Société Médicale des Hôpitaux, Paris

48: 1184-1345 (July 25) 1924

*Eruptions Under Insulin Treatment. Lereboullet et al.—p. 1184.
Diphtheria Allergy. C. Zoeller.—p. 1191.
*Kidney Lesions in Hypertension. C. Lian and R. Barrieu.—p. 1196.
Case of Joint Pains in Gout. M. P. Weil.—p. 1203.
*Parapancreatic Tumor and Diabetes. H. Dufour et al.—p. 1209.
Tabes Starting by Acute Ataxia. Alajouanine and Perisson.—p. 1218.
Large Duodenal Diverticulum. P. Carnot and N. Peron.—p. 1222.
Recurring Purpura in Endocarditis. Aubertin and G. Rimé.—p. 1224.
Amebic Cystitis. Petzetakis.—p. 1227.
Aneurysm in Pulmonary Artery. F. C. Arrillaga.—p. 1230.
The Parenchyma in Syphilitic Liver. Macaigne and Jacquinet.—p. 1236.
*Fat-Tissue Necrosis of the Pancreas. P. Merklen and M. Wolf.—p. 1244.
Serotherapy in Myelitis. Lentz and G. Etienne.—p. 1254.
*Serotherapy in Scarlet Fever. T. Mironescu and M. Gunzburg.—p. 1256.
Lymphatic Leukemia and Vichy Treatment. Ardoin.—p. 1259.
Oleothorax in Pneumothorax with Pleurisy. R. Burnand.—p. 1262.
Urobilin and Urobilinogen in Duodenal Fluid. M. Chiray and R. Benda.—p. 1266.
Acute Ventricular Meningitis. L. Babonneix and Azerad.—p. 1278.
Autogenous Vaccine Treatment in Septicemia. H. Bourges.—p. 1280.
Oospore Meningo-Encephalitis in Pulmonary Tuberculosis. Vialard et al.—p. 1284.
Pneumorachis in Diagnosis of Compression of Spinal Cord. Daunic et al.—p. 1289.
The Alkali Reserve in Diabetic Acidosis. M. Labbé et al.—p. 1296.
*The Basal Metabolism in Exophthalmic Goiter. M. Labbé et al.—p. 1298.
Acute Leukemia Simulating Appendicitis. Massot et al.—p. 1311.
Syphilitic Disease of the Pancreas. P. Carnot and N. Peron.—p. 1315.
Superposed Areas of Hydropneumothorax. G. Caussade et al.—p. 1318.
Epidemic of Diphtheria at Maternity. Ribadeau-Dumas et al.—p. 1326.
Biologic Reactions in Untreated General Paralysis. A. Sézary et al.—p. 1335.
Paget's Disease of the Bone in a Syphilitic. Weil and Azoulay.—p. 1342.

Eruptions Under Insulin Treatment.—Lereboullet, Lelong and Frossard observed a case of diabetes in a child, aged 4½ years, in which insulin injections caused, besides local disturbances, urticaria and different types of edematous eruptions, compelling interruption of the treatment. The clinical picture resembled that of serum sickness, or the desquamative generalized erythrodermia after arsphenamin treatment. They cite certain Americans who succeeded in inducing desensitization in one patient with urticaria, and obtained good results in another case by changing the insulin preparation. The local reaction at each injection was analogous to the phenomenon of Arthus, the urticaria to serum sickness. The edematous erythema, they assume, was a secondary infection, due to reactivation of a latent microbism in the skin. The child died.

The Kidneys with Chronic Hypertension.—Lian and Barrieu's research on Ambard's coefficient and azotemia, in 206 patients with hypertension, showed disturbed functioning of the kidneys in 90 per cent. of the cases. The azotemia was not menacing in more than 10 per cent., the danger from the high blood pressure consisting mostly in complications of a mechanical nature. They consider the hypertension as a syndrome of a disturbed function of the sympathetic and endocrine systems, usually caused by some general disease. The latter may involve also the kidneys, which increases the hypertension.

Sympathetic Pathogenesis of Diabetes.—Dufour, Rouèche and Baruk report a case of a sarcoma enveloping the pancreas, which had entailed diabetes with intense hyperglycemia and glycosuria. Considering that the tumor did not invade the pancreas itself, but that the abdominal sympathetic was

embedded in the tumor, they believe the case confirms the sympathetic pathogenesis of diabetes, in connection with the endocrine glands.

Misleading Case of Fat-Tissue Necrosis of the Pancreas.—Uncontrollable vomiting and weakness dominated the clinical picture in the alcoholic woman, aged 45. There were no local symptoms until near death, a month after the onset.

Action of Milk from Convalescent Women on Scarlet Fever.—Mironescu and Gunzburg tried in four patients with grave scarlet fever the action of an extract from the milk of convalescing women. A single intramuscular injection produced a lowering of the fever, and improvement in the general condition. One in this group died, a woman, aged 40, with cirrhosis of the liver and chronic nephritis. A dose of 10-12 c.c. was used in a single injection. The technic for preparing the extract is given. The milk of convalescents seems to have the same therapeutic value as the blood serum.

Effect of Physical Measures on the Basal Metabolism in Exophthalmic Goiter.—Labbé and his co-workers state the favorable results from electrotherapy and radiotherapy in thirty-three cases of exophthalmic goiter. An improvement was manifest in twelve patients out of fifteen treated with the continuous and interrupted currents, and in seventeen out of eighteen treated with roentgen rays. The basal metabolism decreased under the influence of radiotherapy, to become normal after recovery. Physical measures, they reiterate, should be preferred in treatment to an operation.

Comptes Rendus de la Société de Biologie, Paris

91: 785-846 (Oct. 7) 1924. Partial Index

*Mast Cells in Neurofibromatosis. L. Cornil and P. Michon.—p. 787.
*Production of Anthrax Antibodies. A. Gratia.—p. 795.
Production of Bacteriolytic and Hemolytic Antibodies by Way of the Skin. A. Gratia and B. Rhodes.—p. 797.
*Experimental Cancer in Rat's Bladder. J. Maisin and E. Picard.—p. 799.
*Blood Chlorids in Shock. E. Zunz and J. La Barre.—p. 802.
*Action of Chloral on Coagulation. M. Nechkovitch.—p. 808.
*The Thyroid as a Factor in Anaphylaxis. M. Nechkovitch.—p. 809.
*Histopathology of Elephantiasis. R. Alberca.—p. 813.
Titration of Thyroxin in Glands and Thyroid Preparations. T. A. Redonnet.—p. 816.
*The Oligodendroglia Cells. P. Del Rio-Hortega.—p. 818.
Alleged Anaphylaxis in Vegetable Kingdom. Novoa Santos and F. Gonzalez Criado.—p. 820.
Cajal's Contributions to Hematology. G. Pittaluga.—p. 824.
Latent Vitality in Young Sprouts. M. Sanchez y Sanchez.—p. 827.
*Action of Colloids on Immunity. G. Pacheco.—p. 839.
Mechanism of Bacteriophage Action. J. da Costa Cruz.—p. 840.
*Bacteriophage in Treatment of Dysentery. J. da Costa Cruz.—p. 845.

Mast Cells in Neurofibromatosis.—Cornil and Michon found typical mast cells in two cases of generalized Recklinghausen's disease out of six under observation. They believe that these mast cells do not reveal any defense reaction, but are due to an intermittent irritation, which occurs in this disease. The intermittent character of the irritation explains the inconstant presence of the mast cells.

Antibodies in Immunization of the Skin Against Anthrax.—Gratia explains why anthrax vaccine is more effectual when injected into the skin, instead of subcutaneously. In intradermal injection the virus becomes encapsulated, proliferates and saturates the tissues with toxic products. The organism reacts not only by agglutinins, but also by antiaggressins, which are the real immunizing antibodies. If the vaccine is injected subcutaneously, the virus is rapidly destroyed, through phagocytosis, and does not liberate any aggressins. As the organism responds only by agglutinins, without antiaggressins, the immunization is less effectual.

Experimental Epithelioma in Rat Bladder.—Maisin and Picard succeeded in inducing by local application of paraffin, tar or scarlet red, an epithelioma in the bladder of one of ten white rats tested. The experiment proved once more the difference in susceptibility of different tissues to the same causal factor. Rats manifest an extraordinary resistance to attempts to induce cancer in the skin by chemical means.

The Chlorid Content in the Blood During Anaphylactic Shock.—Zunz and La Barre's research on guinea-pigs, during a serum anaphylactic shock, showed an increase of chlorids in the whole blood and in the corpuscles, and a decrease in the plasma. The changes are the more pronounced, the more intense the shock.

Action of Chloral on Blood Coagulation.—Nechkovitch states that chloral accelerates blood coagulation by a direct action on the fibrinogen, and by irritation of the leukocytes. Besides these two factors, the action of chloral on the endothelium of the vessels has to be considered in intravenous injections.

The Thyroid Gland in Anaphylaxis.—Nechkovitch relates that a total thyroidectomy in the rabbit does not prevent local anaphylactic disturbances. It may attenuate the signs of an anaphylactic shock, but does not inhibit the anaphylaxis.

Histologic Findings in Elephantiasis.—Alberca noted hypertrophy and hyperplasia of connective tissue in all cases of elephantiasis. A considerable increase in elastic fibers occurs in the epidermis, as well as in the derm.

Relationship of Neuroglia Cells and Schwann's Cells.—Admitting that it is still uncertain whether the oligodendroglia cells and Schwann's cells resemble each other in structure alone, or have also a similar function, Rio-Hortega assumes that both cells exert the same function of isolation and nutrition in respect to the nerves.

Action of Colloids on Immunity.—Pacheco injected intravenously colloid solutions in nine patients with typhoid, and in five with paratyphoid fever. The injections did not exert any effect on the fever, beyond a transient decrease of short duration. The complement fixation rate increased in 90 per cent., and persisted till the eighth day after the last injection. The results were similar to these from an active immunization by vaccination. No difference was observed in the action of injections of colloidal silver, gold or rhodium.

Bacteriophage in Treatment of Dysentery.—Costa Cruz affirms that bacteriophage administration is the best treatment in dysentery available at the present time. An improvement occurs in from four to eight hours, and the patient is convalescing after twenty-four to forty-eight hours. The bacteriophage is given by mouth twice a day, each dose containing 2 c.c. In some instances the treatment has to be continued at least two days after all symptoms have disappeared. The Instituto Oswaldo Cruz has distributed 10,000 boxes of the bacteriophage in the last year to physicians throughout Brazil, and very few instances of failure have been reported. The bacteriophage does not neutralize the toxin, and the Shiga antiserum may be required in addition.

Marseille Médical

61: 1053-1080 (Sept. 5) 1924

*Anatomy in Art. E. Pluyette.—p. 1053. Conc'n, p. 1081.

The Anatomy Lesson in Art.—After the Reformation, Art turned from Madonnas to portraits, and this tendency was particularly manifest in the Netherlands in the seventeenth century. The revulsion from these religious subjects was expressed to a certain extent in group portraits gathered around a dissecting table. Pluyette has found fourteen of these "Anatomy Lesson" paintings by the Dutch artists of that period, and reproduces a number of them with running comment. Besides Rembrandt's famous Dr. Tulp group, Rembrandt painted another Anatomy Lesson twenty-four years later, now at Amsterdam. He says that in the Dr. Tulp picture the tissues of the cadaver show remarkably that they are in the stage in which they respond only to gravity, but the dissection is poor. If the thumb were not turned outward, it would be impossible to say whether the tendon held in the forceps was a flexor or extensor tendon. The picture was painted on Tulp's order for the "Guild of Surgeons," and the names of all in the group are on record. "In the later, Dr. Deyman picture, the feet of the cadaver face the observer. The open abdomen and skull form one of the most terrible conceptions that painting has ever produced." In van Neck's Anatomy Lesson the cadaver was that of a new-born child. The latest in the series is Sporekmans', at Antwerp. It measures over 12 by 15 feet, and groups twenty-two figures, all portraits.

Paris Médical

245-280 (Oct. 4) 1924

Neurology in 1924. J. Camus.—p. 245.
*Direct Treatment of Meningitis and Encephalitis. Cestan and Riser.—p. 255.

*Complications of Intraspinal Injections. J. Camus.—p. 262.
Etiology of Writers' Cramp. J. A. Barré.—p. 266.
Differential Diagnosis in Multiple Sclerosis and Compression of the Spinal Cord. E. Long.—p. 272.

Intravenous Versus Intraspinal Injections in Treatment of Meningitis and Encephalitis.—Contrary to some opinions, Cestan and Riser believe that none of the injected substances have any affinity for nervous tissue, and, they say, there is no evidence of a direct current in the cerebrospinal fluid from its source of origin to the nervous cells. Consequently, subarachnoid injections should not be preferred in cases of meningitis and encephalitis, as they aggravate the inflammatory process caused by the lesion. They point out that subarachnoid injections fail in many instances, while intravenous injections succeed. Experiments are reported of attempts to make the nervous cell more sensitive to the specific substance, injected into the blood, by preceding it with some other substance, morphin before neo-arsphenamin in syphilis, and chloroform before arsphenamin in general paralysis. The results were encouraging.

Complications of Intraspinal and Intracerebral Injections.—Camus emphasizes that intraspinal injections may be followed, if not immediately, in from one to three days, or even later, by grave and fatal disturbances. The fatal issue may erroneously be ascribed to the disease, when in reality it is due to irritation from the drug injected.

Presse Médicale, Paris

32: 793-800 (Oct. 4) 1924

*Popularization of Duodenal Intubation. Chiray et al.—p. 793.
Surgical Anatomy of the Splanchnic Nerves. H. Billet.—p. 795.
*Modified Technic for Artificial Vagina. H. Constantini.—p. 798.
*Treatment in Arteriovenous Aneurysm. A. Cosacesco.—p. 799.

Popularization of Duodenal Intubation.—Chiray, Le Clerc and Milochevitch advocate the use of duodenal intubation by the Lyon technic, and suggest the intermittent method in preference to the continuous. They acknowledge that French patients may be less docile than American patients, or the nervous reactions in the French may be actually more pronounced. The intermittent method, however, is tolerated even by nervous women. Their experience with this nonsurgical drainage of the biliary tract has been very favorable, especially in chronic cholecystitis without gallstones. They have a number of patients who return periodically for the relief from a new intubation. The intubation might be tried in treatment of disorders apparently remote from biliary disturbances, such as migraine, or certain forms of chronic rheumatism.

Modified Technic for Artificial Vagina.—Constantini illustrates his modified technic for Baldwin's operation, in which the high postoperative mortality, 17 per cent. in ninety cases compiled, is attributed to gangrene of the severed loop, or of the portion of the intestine in the anastomosis. His technic aims to ward off the danger by sparing the mesentery. This is possible by suturing the bowel side-to-side (gun barrel) instead of end-to-end. The mesentery of the resected segment can thus be drawn down intact. Favorable results were noted in two cases.

Expectant Treatment Versus Operation in Aneurysm.—Cosacesco admits that an arteriovenous aneurysm may subside spontaneously. But such instances are exceptional, and expectant treatment may entail grave complications.

32: 801-808 (Oct. 8) 1924

*Modified Tubercle Bacilli in Treatment of Surgical Tuberculosis. A. Vaudremer.—p. 801.

Vaccine Therapy in Surgical Tuberculosis.—Vaudremer reports his experiences with an emulsion of tubercle bacilli subjected to the action of *Aspergillus fumigatus*. He used it in fifteen cases of surgical tuberculosis. In this emulsion, 25 per cent. of the bacilli are destroyed, the surviving bacilli have lost their tuberculin, and their resistance to acids is attenuated, the virulence reduced. A dose of 0.5 to 1 c.c. is used in subdermal injection. Certain local tuberculous lesions were cured by a single injection, and the general condition markedly improved. In some cases the injection was repeated.

Revue de Chirurgie, Paris

62: 507-578, 1924

*Treatment of Compound Fractures. P. Aumont.—p. 507.
Removal of Dermoid Cysts in Mediastinum. Aurousseau.—p. 553.

Treatment of Compound Fractures.—Aumont was able to operate in the first five hours in all but two of the twenty-one cases of compound fracture, with or without involvement of joints, which he reports. By the immediate surgical toilet of the region he was able to suture at once in nineteen of the cases, thus transforming the compound into a simple fracture. In two other cases the suture was made secondarily. No functional disturbances resulted from débridement carried into red and bleeding muscle tissue. He takes a new set of gloves and instruments for the deeper tissues, discarding those used for the skin and superficial planes. His aim was realized in all but three cases. Transforming the compound into a simple fracture promotes rapid healing with the minimum of functional disturbance. Reconstruction of the bone at once does not offer the risks previously anticipated; there is no tendency for casting off of the plate or wire when healing occurs, while the shape and size of the limb are not altered. The plate or wire was left in the tissues in fifteen cases, and there has been no disurbance from them.

Revue Médicale de la Suisse Romande, Geneva

44: 545-624 (Sept.) 1924

*Gas Cysts on the Intestines. A. Reverdin.—p. 545.
*Action of Mushroom Poisons. M. Roch and A. Cramer.—p. 557.
*Unilateral Chronic Nephritis. M. Gilbert.—p. 564.
Remote Results of Treatment in Pott's Disease. A. Jentzer.—p. 577.

Gas Cysts on the Intestines.—Reverdin reports two cases with accumulation of gas cysts on the bowel. An exploratory laparatomy was followed by disappearance of the cysts in one case. They subside spontaneously in most cases, after an exploratory laparotomy. Recurrence, however, is common, and was noted in one of his cases. The pneumatosis was complicated with volvulus in the other patient, and the woman died six hours after the laparotomy.

Action of Mushroom Poisons.—Referring to three cases of mushroom poisoning, Roch and Cramer recall that the poisons of certain mushrooms, which they specify, affect the muscular fibers, while others act on the nervous system, or produce degeneration of the cells. The poison may also contain hemolytic substances, or cause gastro-enteritis.

Unilateral Chronic Nephritis.—Gilbert discusses the necropsy findings in three cases of chronic, diffuse nephritis confined strictly to one kidney. The microscope revealed glomerular and tubular lesions in one case, a secondary cirrhosis of the kidney in another, and a cirrhosis of arteriosclerotic origin in the third. He emphasizes the importance of the congenital or acquired predisposition in this unilateral disease.

Revue Neurologique, Paris

2: 113-200 (Aug.) 1924

*Tumor in the Optic Chiasm with Pleocytosis. Christiansen.—p. 113.
*Radiotherapy for Brain Tumors. G. Roussy et al.—p. 129.
*Hypertrophic Polyneuritis in Adult. C. Achard and J. Thiers.—p. 146.
*Case of Progressive Lenticular Degeneration. P. Nayrac.—p. 151.
*Research on the Serum of Epileptics. Suttel and Arsac.—p. 165.

Tumor in the Optic Chiasm with Pleocytosis.—Christiansen tabulates the data from six cases of a tumor in the optic chiasm, accompanied by pleocytosis. They formed a small group in the twenty-eight with symptoms of a lesion in the optic tracts at the base, out of his total of 220 cases of brain tumors in the last six years. The signs of compression of the optic nerve were evidently the same as in syphilitic meningitis at the base, in which the chiasm is usually the region of predilection. The differential diagnosis may be based, in doubtful cases, on the symptoms corresponding to a strict localization of a tumor in the chiasm. A syphilitic lesion in this region generally affects other parts in the brain or spinal cord, and the symptoms are never so strictly localized.

Radiotherapy in Brain Tumors.—Roussy, Laborde and Lévy cite Pancoast's thirty-two cases of brain tumor, mostly

glioma, in which an operation was followed by roentgenotherapy. While fourteen patients died, eighteen were still alive after seven years. Their own experience is less encouraging. On the basis of five personal cases of glioma they warn not to try radiotherapy before surgical intervention, the irradiation frequently causing grave cerebral complications. It has also to be borne in mind that most brain tumors are refractory to the roentgen rays, and that an early differential diagnosis is difficult. Removal of the tumor and decompressive trephining at need should be preferred to irradiations. Only after all that is possible by these means has been realized, should roentgen-ray exposures be considered.

Hypertrophic Polyneuritis in Adult.—Achard and Thiers describe a case of chronic hypertrophic polyneuritis in a young man, preceded by seven years by muscular atrophy. Babinski's sign and epileptic seizures showed the central origin of the disease. They agree with Raymond and others that the disturbance may belong to the same group as muscle atrophy of Charcot-Marie type.

Wilson's Disease Associated with Pseudosclerosis of the Brain.—Nayrac refers to a personal case of progressive lenticular degeneration associated with pseudosclerosis of the brain. Contrary to the current theory, he assumes hypothetically that the cirrhosis of the liver is not the primary lesion in Wilson's disease, but that the brain is first affected. Changes in the tuber cinereum, which is supposed to take an important part in the metabolism of fats and carbohydrates, may induce consecutively functional and organic disturbances in the liver.

Research on the Blood Serum in Epileptics.—Suttel and Arsac based their experiments on the tradition that wounds, even fractures, heal in epileptics more rapidly than in the healthy. Their research suggests that the serum contains a substance which produces the seizures, and also promotes cicatrization. They were unable to determine whether the substance is more active before or after the seizure, or if it depends on the frequency of the seizures. It may yet prove possible to isolate the causal substance from the serum, and determine its origin.

Archivio Italiano di Chirurgia, Bologna

10: 1-112 (Aug.) 1924

*Osteomyelitis of the Ilium. P. Buonsanti.—p. 1.
Transverse Lumbar-Abdominal Access to Duodenum. C. Vaccari.—p. 49.
Improved Technic for Gastro-Enterostomy. P. Delitala.—p. 62.
*Plastic Operation for Incontinence of the Anus. G. Ferrarini.—p. 85.

Acute Osteomyelitis of the Ilium in Children.—Buonsanti relates that the four cases of this kind among his 170 cases of osteomyelitis in fourteen years were the only ones in which the disease attacked a flat bone. He does not admit that this affection is common or easily diagnosed. Metastases in adjacent viscera explain the protean manifestations. The staphylococcus was found in all his cases, osteomyelitis being "the furuncle of the bone," as Pasteur said. The symptoms and the swelling may be at some distance from the ilium. In two cases the upper third of the femur was supposed to be the site of the lesion. The course was rapidly fatal in 75 per cent., with numerous metastases. Bimanual pressure on the crest of the ilium is instructive, but roentgenography is generally negative at first. The pulse warns of the grave septicemia. There was a history of trauma in 50 per cent. of his cases.

Rectal Incontinence Relieved by Plastic Operation.—Ferrarini compares the various methods in vogue, and extols the advantages of crossing strips from the gluteal muscles to bridle the anus. He obtains the strip through an incision several inches from the anus on each side, drawing the strip down subcutaneously.

Archivio de Patologia e Clinica Medica, Bologna

3: 305-444 (Sept.) 1924

Etiology of Inguinal Lymphogranuloma. C. Gamna.—p. 305.
Clinical Forms of Chronic Sepsis: Slow Myocarditis. A. Dalla Volta.—p. 317.
*Sign of Adhesions in Pleura. Arrigo Perin. —p. 359.
Clinical Picture of Insufficiency of Left Ventricle. A. Gasbarrini and E. Segré.—p. 363. Cont'd.
*Vegetative System After Encephalitis. A. Ferraro.—p. 393.

Sign of Adhesions in the Pleura.—Perin has noticed that there is a characteristic change in the sound with light percussion during the two phases of respiration when there are adhesions in the pleura. The area of the change in the sound during inspiration from the sound during expiration always coincided with an area in which it was impossible to make an injection for pneumothorax.

Tonus of Vegetative Nervous System in the Sequelae of Epidemic Encephalitis.—In eleven of the sixteen cases investigated by Ferraro, both the sympathetic and the parasympathetic system showed excessive excitability, neither apparently predominating in four. In five the parasympathetic and in two the sympathetic displayed the leading hypertonia. Each was tested with epinephrin, pilocarpin and atropin.

Policlinico, Rome

31: 1259-1289 (Sept. 29) 1924

*Blood Clotting and Platelets in Fatigue. S. Caccuri.—p. 1259.
*Atresia of Anus with Vaginal Fistula. G. Aquilanti.—p. 1264.
Pedunculated Polydactylia. G. Artusi.—p. 1267.

Blood Clotting and Platelets in Fatigue.—Caccuri noted a decrease in blood platelets in overexertion, followed a day later by an increase. This explains the changes of coagulation time, which is prolonged at first and shortened later.

Atresia of Anus with Vaginal Fistula.—Aquilanti's patient was a woman with congenital atresia of the anus with a wide opening into the vagina. Defecation had always proceeded without disturbances or incontinence.

Riforma Medica, Naples

40: 913-936 (Sept. 29) 1924

*Ankylosis of the Spine and Syphilis. U. Tomasone.—p. 913.
*Chemotherapy of Weil's Disease. V. Vanni.—p. 916.
*Leukoplakia and Cancer from Bladder Calculus. G. Cirillo.—p. 918.

Ankylosis of the Spine and Syphilis.—Tomasone considers syphilis the most important cause of ankylosis of the vertebral joints (rhizomelic spondylosis).

Chemotherapy of Weil's Disease.—Vanni injected guinea-pigs with *Spirochaeta icterohaemorrhagiae*, and reports fine results of treatment with tartar emetic. A man with Weil's disease, treated with neo-arsphenamin, was probably injured by it.

Leukoplakia and Cancer from Bladder Calculus.—Cirillo's patient was operated on for a stone in the bladder. Leukoplakia of the bladder was noted during the operation. Six months later the patient returned with an epithelioma which had developed, probably, on the basis of the leukoplakia.

Anales de la Facultad de Medicina, Montevideo

9: 575-698, 1924

*Stomach in Right Thorax. J. Cunha.—p. 575.
*Cancer of the Esophagus in Uruguay. J. M. Alonso.—p. 598.
Cystic Fibro-Adenoma of the Breast. A. Lamas.—p. 617.
*Acute Hemorrhagic Pancreatitis. D. Prat.—p. 623.
The Carrel Method of Treating Wounds. D. Giribaldo.—p. 641.
Progress in Cultivation of Tubercle Bacillus. Torrazza.—p. 661.
Inaugural Lecture of Surgery Course. E. Blanco Acevedo.—p. 666.

Congenital Displacement of the Stomach.—Cunha gives the roentgen-ray findings in a girl infant, aged 4 months, whose stomach was entirely in the right half of the thorax, and twisted so that the greater curvature was at the right. Comparison of this case with others on record seems to prove that the majority of such abnormalities are congenital displacements and not diaphragmatic hernias. The child is developing apparently normally, weighing now 7 kg. at the age of nine months. The spleen does not accompany the stomach, but the colon is usually drawn out of its normal position.

Cancer of the Esophagus in Uruguay.—Alonso encountered only one instance of metastasis in a woman and one in a man among the 237 cases of cancer in the esophagus in his service since 1911. The group included eighty-one women. In one case a tumor in the carotid region was lanced on the assumption of suppuration of a gland, but it was traced to a perforation of the esophagus by a cancer 18 cm. from the teeth. In 1,148 admittances for cancer, the stomach was the site in 415, the uterus in 372 and the esophagus in 361. The routine treatment now is early gastrostomy with direct radium treatment. He warns to keep the gastrostomy open-

ing permeable, as it may be needed again later, and it is almost impossible to insure continence with a second gastrostomy. The death of one patient is ascribed to the uncontrollable incontinence.

Acute Hemorrhagic Pancreatitis.—Prat states that there were no signs of fat tissue necrosis in his two cases. The sudden continuous, agonizing pain and rapid, filiform pulse were the only appreciable symptoms in the robust young man till death the eighth hour. In the second case an operation the sixteenth hour revealed the pancreas hard and triple its normal size, but no fat necrosis and no tumor, and the pulse was full and normal. The gallbladder was drained, removing numerous concretions, with recovery of the man, aged 28. The only difference Prat has noted between the pain of perforation of the stomach and that of acute pancreatitis is that with the former the upper abdomen is hard and taut. With ileus the vomiting is more incessant.

Prensa Médica Argentina, Buenos Aires

11: 353-384 (Sept. 20) 1924

*The Basal Metabolism. T. Castellano and M. Schteingart.—p. 353.
Correction of External Deformity of the Nose. E. T. Frers.—p. 366.
Fasciola Hepatica Found in Stools in Argentina. Greenway.—p. 369.
Cultivation of Fowl Heart Tissue Outside the Organism. A. H. Roffo.—p. 371.

The Basal Metabolism from the Clinical Standpoint.—Castellano and Schteingart comment on their sixteen cases in which the basal metabolism was systematically recorded. They assert that greater skill and experience are required for interpretation of the findings than for applying the tests. They regard it as a valuable routine guide in treatment of obesity as well as of thyroid disease.

Semana Médica, Buenos Aires

2: 521-572 (Sept. 4) 1924

*Simultaneous Irrigation and Aspiration of Cavities. L. Samengo.—p. 521.
*Intramuscular Injections. C. de Tommaso and I. L. Ymaz.—p. 531.
Welfare Work for Infants of Wetnurses. M. Acuña.—p. 533.
Asthma. J. L. Celasco.—p. 536.
Diagnosis and Treatment of Puerperal Fever. J. V. Jiménez.—p. 540.
Differential Palpation of Hydatid Cyst in Kidney. De Sanctis.—p. 545.
Advantages of Sabanajeff's Osteoplastic Amputation. J. Valls.—p. 559.
Necessity for Institute for Study and Treatment of Tuberculosis. G. Aráoz Alfaro.—p. 563.

Simultaneous Irrigation and Vacuum Aspiration of Cavities.—Samengo gives a number of illustrations of application of his *irrigoaspiración continua electrica* in treatment of the ear, nose and throat. One illustration shows a trocar with aspiration device to open and evacuate a pus pocket; others show the two-way sounds for irrigation-aspiration and the special ball device at the tip which prevents the mucosa from being sucked into the openings.

Improved Technic for Intramuscular Injections.—Tommaso and Ymaz noticed that the urine of patients who bore intramuscular injections of arsenicals or mercurial or bismuth preparations without local or general disturbance was always hypo-acid. This suggested measures to reduce the acidity of the urine as a means to ward off the local and general reactions observed in the intolerant. When the morning urine is hypo-acid, they give sodium bicarbonate two hours after the meals of the day before the intramuscular injection. The doses can be varied and continued the day after the injection, guided by the acidity of the urine. No further intolerance was observed when the urine was thus rendered alkaline.

Jahrbuch für Kinderheilkunde, Berlin

107: 1-126 (Sept.) 1924

*Malignant Nodding Spasms in Infants. Asal and Moro.—p. 1.
*Tardy Eruption in Scarlet Fever. G. Fanconi.—p. 18.
*Case of Adiposogenital Dystrophia. E. Denzler.—p. 35.
Two Types of Scarlet Fever. F. v. Szontagh.—p. 45.
Basophil Leukocytes in Scarlet Fever. J. Ambrus.—p. 68.
Stomach Dilatation After Spasm of the Pylorus. A. Hirsch.—p. 71.
Indications for Intracardiac Injections. C. Meyer.—p. 76.
Intelligence Tests for Children Under Age of Four. G. Schwab.—p. 86.
Acidity in Duodenum Contents. Schiff and Gottstein.—p. 99.
Lemon Juice Seems to Reenforce Resistance of Organism. Grünmandel and Leichtentritt.—p. 104.

Malignant Nodding Spasms in Infants.—Asal and Moro call attention to a malignant type of nodding spasm, occurring in early infancy, which should be differentiated from the salaam spasm. The clinical features are a sudden jerk passing through the body as from an electric shock. The head falls forward, and the arms are flung outward or backward. Seventy such attacks were noted during twelve hours in one case. This "lightning spasm" is always single, while the salaam spasm appears in series. Both these kinds of spasm are due to organic changes, of epileptic nature, but with a special localization in the central nervous system, and the outlook for the mental development of the child is unfavorable. Asal and Moro emphasize further that the salaam convulsion is currently confounded with nodding spasm, which is a benign disturbance. The latter, on the other hand, should be distinguished from head jactation, nocturnal or diurnal, automatic movements which are a matter of habit, and have nothing in common with convulsions.

Tardy Skin Manifestations in Scarlet Fever.—Fanconi observed in sixty-nine out of seventy-four children, convalescing from scarlet fever, a tardy skin eruption, which appeared from the second to the fourth week. The eruption appeared in four forms, maculopapular, rhagadiform, papular and pityriasiform. In three girls, aged 12 and 14, stria distensae, wrinkled skin, appeared on the buttocks. The eruption may be valuable for retrospective diagnosis, as it occurs even when desquamation is slight or lacking. "It is strange that these characteristic tardy skin manifestations have escaped attention hitherto."

Peculiar Type of Adiposogenital Dystrophia.—Denzler reports a case in a boy, aged 12, with characteristic congenital malformations, and mentally backward. Roentgenoscopy showed not only an enlarged pituitary, but also changes in the structure and in the shape in the corresponding region of the base of the skull, an instance of associated pituitary and cerebral lesions.

Klinische Wochenschrift, Berlin

3: 1793-1840 (Sept. 30) 1924

Endocrine Glands and the Skin. L. Pulvermacher.—p. 1793.
*Pathogenesis of Diabetes Insipidus. E. Meyer and Meyer-Bisch.—p. 1796.
*Pituitary Diabetes Insipidus. M. Staemmler.—p. 1799.
*Preventive Digitalis in Surgery. V. Hoffmann.—p. 1802.
*Oxytocic Action of Cerebrospinal Fluid. A. Mayer.—p. 1805.
*Virulence from Standpoint of Prognosis. W. Lehmann.—p 1806
*Mechanism of Action of Phlorizin. W. Teschendorf.—p. 1811.
*The Pressure in the Aorta. S. Rusznyák and S. v. Gönczy.—p. 1813.
*Insulin in Nondiabetic Ketonuria. K. Herzberg.—p. 1816.
Heredity of Papillar Lines (Finger Prints). Leven.—p. 1817.
"Benzochol" Extracts in Diagnosis of Syphilis. H. Sachs and A. Klopstock.—p. 1818.
*Phonation Center. E. A. Spiegel and E. V. Ullmann.—p. 1818.
*Insulin. R. Wasicky.—p. 1819.
*The Automatic Bladder. T. Hryntschak and E. A. Spiegel.—p. 1819.
A Mother of Quintuplets. L. Fraenkel.—p. 1820.
Resection of the Promontory. L. Fraenkel.—p. 1820.
Urologic Examination Methods. A. Lewin.—p. 1821.
The Crisis of the Profession in Germany. E. Mayer.—p. 1823.
Ocular Shutter for Platelet Counts. A. Neumann.—p. 1839.

Pathogenesis of Diabetes Insipidus.—Meyer and Meyer-Bisch report a case of hypochloremic diabetes insipidus due to a sarcoma of the base of the brain, which had destroyed the posterior lobe of the pituitary, the infundibulum and a part of the hypothalamus. They believe that a disturbance in the ability of the kidneys to concentrate chlorids was the primary change. Disturbances of the tissues may occur secondarily in such cases. Staemmler adds, and discusses the histologic details of the case.

Preventive Digitalis in Surgery.—Hoffmann injected digitalis or strophanthin in frogs, and tested the resistance of the isolated heart against narcotics, especially alcohol, and other drugs (quinin). He found a distinct protective action except with too large doses of digitalis.

Oxytocic Action of Cerebrospinal Fluids from Parturients.—Mayer reports on the experiments of his assistant, Schneider. Intravenous and intraspinal injection of the cerebrospinal fluid from pregnant women—especially from those in labor—induced contractions of the uterus.

Virulence from Standpoint of Prognosis.—Lehmann, working at Schottmüller's clinic, found no difference between the action of the patients' own blood on the germs in sepsis (Philipp's method) and Schottmüller's older method of action

of any human blood. Determination of the virulence gave no results which would have been of any particular value in prognosis. The seat of the infection is more important. Anaerobic germs were quite frequent causes of sepsis—and these are always killed by the blood serum.

Mechanism of Action of Phlorhizin.—Teschendorf confirms the inhibition of phlorhizin diuresis after paralysis of the sympathetic has been induced by ergotamin. The effect on glycosuria was still more marked. He concludes that the action of phlorhizin on the kidneys is only a part of its effect.

Determination of the Pressure in the Aorta.—Rusznyák and Gönczy believe with Benczur that the Riva-Rocci method gives only a relative figure, depending on the energy of the pulse. Gärtner's tonometer measures the hydrodynamic (not hydrostatic) pressure in the volar arch. When the brachial artery is compressed near the systolic pressure with the Riva-Rocci apparatus, the pressure in the fingers, as revealed by Gärtner's tonometer, increases within a few minutes to a maximum. They consider this figure as identical with the hydrodynamic pressure in the aorta. It is in normal subjects as high as that obtained with the Riva-Rocci apparatus; it is higher in diseases of the heart muscle, and lower in insufficiency of the aortic valves.

Insulin in Nondiabetic Ketonuria.—Herzberg injected 20 units of insulin in healthy subjects with ketonuria induced by a protein-fat diet. The amount of acetone bodies decreased. He concludes from this that a healthy subject needs the stimulus of carbohydrates to secrete insulin. The addition of 0.5-1 gm. of sugar per kg. of body weight increased the oxygen consumption in these subjects (up to 20 per cent.). Ten units of insulin caused on the contrary a decrease (10-15 per cent.). Therefore insulin does not prevent ketonuria by mobilization or utilization of sugar.

Phonation Center.—Spiegel and Ullmann found in cats that the medulla alone is sufficient for preservation of reflex phonation. It could not be produced after section 2 mm. back of the entrance of the eighth cranial nerve.

Insulin.—Wasicky reports on investigations made by Glaser and others. They prepared vegetable extracts which had an action similar to that of insulin. This action was related to their oxidizing and catalytic power. Subsequent examination of various commercial insulin preparations demonstrated constantly the presence of peroxydases and aldehydases. Enterokinase increased the action of insulin.

Mechanism of the Automatic Bladder.—Hryntschak and Spiegel conclude that the automatic periodic emptying of the bladder after destruction of the spinal centers can be due only to a process in the wall of the bladder itself.

Wiener klinische Wochenschrift, Vienna

37: 1007-1053 (Oct. 2) 1924

*A Patellar Reflex in Tabes. S. Erben.—p. 1007.
*Treatment of Facial Paralysis. A. Fuchs and M. Pfeffer.—p. 1008.
*Agnosia of Fingers. J. Gerstmann.—p. 1010.
*Injury from Lumbar Puncture. K. Grosz and E. Stransky.—p. 1012.
The Pupils in Catatonia. H. Hartmann.—p. 1013.
*Skin of Sex Organs and Sensibility. I. P. Karplus.—p. 1015.
*Treatment of Intracranial Pressure. O. Marburg.—p. 1017.
*Neurorelapses and Parasyphilis. E. Mattauschek.—p. 1018.
*Paresthesia in Encephalitis. C. Mayer and K. Scharfetter.—p. 1020.
Pressure of Cerebrospinal Fluid. M. Pappenheim.—p. 1023.
Somatic Tendencies in Psychiatry. A. Pilcz.—p. 1026.
Neuroses. E. Raimann.—p. 1027.
*Tendon Reflexes and Degeneration. E. Redlich.—p. 1033.
Treatment of Multiple Sclerosis. M. Schacherl.—p. 1037.
Cerebellar Asynergy of the Legs. P. Schilder.—p. 1039.
Pituitary Type of Impotency. A. Schüller.—p. 1041.
Narcolepsy After Encephalitis. G. Stiefler.—p. 1044.
*Lancinating Pains in Tabes. Wagner-Jauregg.—p. 1046.

A Patellar Reflex in Tabes.—Erben describes a reflex contraction of the quadriceps muscles, noticeable with a quick upward movement of the patella. It occurs when the subject begins to rock forward and backward in the tarsotibial joint, keeping the legs together and the knees straight. This gravitation reflex preserves the balance in the backward movement in teetering from the toes to the heel. It persists for a long time in tabes after loss of the knee-jerk reflex.

Treatment of Facial Paralysis.—Pfeffer and Fuchs describe an apparatus which forces the paralyzed side of the face to make the same movements as the healthy side. It prevents contracture and induces formation of new pathways for impulses.

Agnosia of Fingers.—Gerstmann's patient was unable to recognize her own fingers, and to differentiate the right and left side of her body.

Injury from Lumbar Puncture.—Grosz and Stransky describe a psychic disturbance and somatic symptoms resembling those of a brain tumor which occurred in a syphilitic patient after lumbar puncture. The patient recovered in three and a half months.

Skin of Sex Organs and Sensibility.—Karplus points to the frequently preserved sensibility of the genito-anal region in disturbances of the conduction of sensibility through the spinal cord. This proved also to be the case in experiments on animals. When he blocked conduction by chilling the cord, the reflexes produced by stimulation of the genital region remained longer and reappeared earlier than after stimulation of other parts of the skin.

Treatment of Intracranial Pressure.—Marburg recommends roentgen irradiation of the brain (choroid plexus) in patients with symptoms of increased intracranial pressure.

Neurorelapses and Parasyphilis.—Mattauschek believes that so-called neurorecidives following inadequate treatment prevent general paralysis. He also believes that these neurorecurrences do not develop in subjects predisposed to tabes or general paralysis.

Paresthesia in Encephalitis.—Mayer and Scharfetter confirm the frequency of pains or paresthesias as the first symptoms of epidemic encephalitis. Shifting of the pain from one region to another is diagnostically valuable.

Tendon Reflexes and Degeneration.—Redlich finds that repeated and careful examination reveals the presence of tendon—especially patellar—reflexes in all healthy individuals. If they are really absent, an organic disease, and not vague degeneration is to be looked for.

Lancinating Pains in Tabes.—Wagner-Jauregg allows morphin in extreme cases of gastric crises, but is opposed to its use for lancinating pains. In fact he has seen the persisting pains (tabes dolorosa) only in patients that had been treated with morphin or its derivatives. Warm clothing and specific treatment are to be recommended.

Zeitschrift für Urologie, Leipzig

18: 513-656, 1924. Dedicated to Carl Posner

*Rectal-Urethral Fistulas. F. Voelcker.—p. 514.
*The Kidneys in Myelomatosis. H. Guggenheimer.—p. 523.
*Spontaneous Reduction in Size of Kidney Calculi. K. Scheele.—p. 528.
*Kidney Tuberculosis and Kidney Colic. R. Hottinger.—p. 533.
Incrusted Tumor at Ureter Mouth. H. Rubritius.—p. 537.
Ureter Fistulas and Ureter Suppurations. L. Casper.—p. 545.
Sudden Urine Changes in Bacteriuria and Pyelitis. Schlayer.—p. 549.
Surgical Treatment of Renal Insufficiency. V. Blum.—p. 555.
Tuberculous Nephritis and Renal Tuberculosis. H. Wildbolz.—p. 566.
*Cryptogenic Disease of Genito-Urinary Apparatus. A. Lewin.—p. 572.
Surgery for Calculi Low in Ureter. Joseph and Janke.—p. 575.
*Present Conception of Hydronephrosis. A. v. Lichtenberg.—p. 585.
Position of Male Gonads in Endocrine System. L. Pulvermacher.—p. 593.
*Compression of Ureter by Pregnant Uterus. P. Strassmann.—p. 620.
Diplococci in Chronic Urethritis. J. Cohn.—p. 626.
Operative Cure of Insufficient Kidney Before Removal of Its Mate. H. Kümmell.—p. 633.
Foreign Body in Bladder. H. L. Posner.—p. 643.

Rectal-Urethral Fistula.—Voelcker declares that the arguments in favor of diverting the feces by an artificial anus are convincing. With the natural tight anus, gas and feces progressively aggravate conditions. In a case described, urine and stools were voided by the rectum, by a perineal fistula, and by the urethra, in addition to the artificial anus and a suprapubic fistula. He ascribes his final success to the simple device of leaving a thread in the tip of the catheter left in the urethra and bladder, bringing the thread out through the suprapubic incision. It was thus easy to change catheters by fitting a second catheter into the outer end of the first, drawing it up into the bladder as the first was pulled out of the suprapubic opening. When there was no further need for continuous catheterization, a thread was left passing through urethra and bladder, and this thread was passed through a hole in the center of the tip of a catheter and out

through the side hole. By drawing the ends of the string taut, the catheter could be gently introduced into the bladder. Clinically normal conditions have now been restored.

The Kidneys in Multiple Myeloma Cases.—Guggenheimer explains the injury of the kidneys as the result of the elimination through them of the Bence-Jones albumose. In two cases described, with the necropsy findings, the kidney symptoms were those of a nephrosis, high albumin content, cachexia, occasional edema, but no hematuria, no hypertension, no amyloid reaction. In the first case the rigid pupils, abolished knee-jerk and hypotonia of the muscles suggested a spinal process. With kidney symptoms accompanied by paroxysms of pain, bone changes and cachexia, the Bence-Jones albumose should be sought. It has never been demonstrated in the bone marrow. His patients were men, aged 54 and 62, and the course of the disease was nearly a year in the first but less than three months in the other. The kidneys showed round-cell infiltrations like those in amyloid and scarlatinal kidney disease.

Spontaneous Reduction in Size of Kidney Calculi.—Scheele retrospectively explains his case as follows: The calculi were the result of some inflammatory process during pregnancy. By the mechanical rinsing from water diuresis, the calculi were cleansed and the infection cured. Then the normally acid urine dissolved out the calcium phosphate deposited during the inflammation. Roentgenograms at a year's interval showed the stones decidedly smaller. After two years of repose, they had become so much smaller that they were swept along by the urine, with intense colic pains, relieved only by an operation.

Renal Tuberculosis Versus Calculi.—Hottinger describes some cases which confirm that a tuberculous process in the kidney may develop for a long time with colic as the only symptom. This is probably from the extension of the inflammation into the upper ureter. The confusion with nephrolithiasis is particularly liable when the incrustations cast shadows.

Cryptogenous Origin of Fatal Urinary Disease.—Lewin traced to the intestine the fatal sepsis with principal localization in the genito-urinary apparatus of the man, aged 57. The man had had mild symptoms from the urinary apparatus at times since 1920, with colon bacilli and staphylococci in the urine, evidently of attenuated virulence. After an intercurrent acute gastro-intestinal affection, the urinary process flared up with fatal outcome.

The Modern Conception of Hydronephrosis.—Lichtenberg emphasizes that all disturbances in the evacuation of urine, accompanied or not with pathologic changes in the urinary passages, must be ranked as due to stasis of urine. The pathologic changes appear above the point of obstruction and spread proximally. By due estimation of the pain induced by the distention of the organ as the urine backs up, it is possible to detect the true condition before irreparable lesions develop. He fills the kidney pelvis with a fluid to slight distention. If the pain from this distention differs from the preceding spontaneous pains, or resembles them, we can exclude or incriminate the kidney as the seat of the lesion. Supplemented by the roentgenoscopic findings that the ureter remains empty when the neck of the pelvis is compressed, we are able to differentiate chronic hydronephrosis early. He describes his procedures in treatment of six cases of hydronephrosis from supernumerary vessels, and states that denervation of the kidney in six dogs was not followed by evidence of functional deficit, as he had anticipated, but paralysis of the ureter could be readily realized with toxins and infectious stasis.

Compression of the Ureter During Pregnancy.—Strassmann reports experiences which demonstrate that disturbances from compression of one ureter from the enlarging uterus are more common than generally recognized. Slight pains in the ureter region on one side call at once for prophylactic dietetic measures, thorough purgation, and copious drinking of fluids to flush the urinary passages. Catheterization of the ureter after cystoscopy in the six cases described, relieved the pain and warded off the pyelitis otherwise inevitable from the backed-up urine.

Zentralblatt für Chirurgie, Leipzig

51: 1959-2006 (Sept. 6) 1924

*Low Laparotomy. Kulenkampff.—p. 1960.
Treatment of Fracture of Patella. Schultze.—p. 1962.
*Absorption by the Peritoneum. Pribram.—p. 1964.
*Tannin for Disinfection of Hands. Pokotilo.—p. 1969.
Technic of Operation for Acute Cholecystitis. Walzel.—p. 1971.
Stenosis of Pylorus After Gastro-Enterostomy and Billroth I. B. O. Pribram.—p. 1974.

Low Laparotomy.—Kulenkampff states that in operating on the bladder and the true pelvis, he carries the median incision, to the root of the penis or the anterior commissure. This secures better access to the bladder and the deeper parts of the true pelvis. The deep incision gives so much more room below that he does not need to open the abdomen so far above. Another advantage is that it does not involve the area of abdominal breathing. In carcinoma of the rectum this incision has been found advantageous.

The Absorptive Capacity of the Peritoneum in Young and Old.—Pribram has made a comparative study of the course of peritonitis in children and in adults. In two children the purulent exudate from a perforated appendix was speedily absorbed. This seemed to constitute the young organism's chief means of defense. Scarcely any adhesions formed, nor did the organism make any consistent attempt to localize the focus of infection or to wall it off. In contrast, he cites four cases of appendicitis in patients 40 to 63 years of age, all characterized by slowness of absorption of the exudate. The chief defense lay in the isolation and encapsulation of the focus of infection. He experimented with rabbits by injecting into the peritoneal cavity a 1 per cent. solution of potassium iodid. The rabbits from 14 days to 2 months old required only from twenty to thirty hours for the elimination of the iodid, while 1 year-old rabbits took up to seventy-two hours.

Aqueous Solution of Tannin for Disinfection of the Hands.—Pokotilo recommends this method: The hands are scrubbed with soap and water and are then rubbed with a gauze tampon dipped in a 5 per cent. solution of tannin in water. In fifty-seven cultures taken from the washings of the gauze tampons, in only two instances were there two or three colonies of bacteria. The same results were secured when the scrubbing of the hands with soap and water was omitted. The tannin solution is not bactericidal but forms a film over the hands and prevents the bacteria present from getting out. After the operation, the hands must be cleansed with soap and water or the tannin will injure them. As the tannin is not bactericidal, the solution should be boiled before it is used. Care must be taken to prevent contact with clothing, as the solution stains. Oxalic acid may be applied to stains on clothing.

Zentralblatt für Gynäkologie, Leipzig

48: 2170-2216 (Oct. 4) 1924

Peroxydase Reaction in Gravid Uterus. R. Hornung.—p. 2170.
*Cultures of Ovarian Tissue in Vitro. B. Zondek and E. Wolff.—p. 2193.
*Transplantation of Preserved Human Ovary. B. Zondek and E. Wolff.—p. 2195.
Action on Goiter of Intra-Uterine Use of Mesothorium. G. Braun.—p. 2198.
Tardy Ruptures of Tube After Tubal Abortion. Kraul.—p. 2201.
*Death of Fetus from Serum Sickness in Mother. E. Fischer.—p. 2203.

Growth of Human Ovarian Tissue in Vitro.—Zondek and Wolff experimented on cultivation of ovarian tissue outside the organism. Cultures of fetal ovary, eight months, removed eight hours after death, showed a growth of the embryonal epithelium. Granular cells were found in cultures of ovary tissue from a woman with cancer of the uterus. Cultures with umbilical cord were positive, while the growth of the amniotic epithelium was especially pronounced. The experiments with placenta tissue have been negative so far.

Transplantation of Preserved Ovary.—Zondek and Wolff obtained also positive cultures with an ovary which had been kept for fourteen days in a special icebox described. After successful experiments with the preserved ovarian tissue in animals, transplantations were also tried in women. The grafts were made subcutaneously, above the pubis, or on the thigh, and the ovarian tissue was placed on the fascia. The results cannot yet be determined, considering the short period

since the operation. The purpose of the preservation is to have a steady supply of microscopically verified tissue.

Death of Fetus During Serum Sickness in Mother.—Fischer reports two cases of death of the fetus which may be attributed to serum sickness in the mothers. Immunization had been induced by streptococcus vaccine and antiserum in the women at the end of pregnancy on account of pyelitis. The necropsy showed in one child, born dead, only petechial hemorrhages, while in the other, who survived sixteen hours, grave hemorrhages were found in brain, kidneys and suprarenal capsules. The protein toxins, cause of the serum sickness in the mother, may have produced the fatal disturbances in the child. The slight disturbances in the first child are explained by the severe serum reaction in the mother, which caused death before any important changes could occur in the fetal organs. In order to ward off such consequences, it is suggested to refrain from injecting the antiserum until labor pains have started, and delivery is well under way. They aim to induce active immunization. If labor occurs in less than eight days after the inoculation, then an antiserum is given to overcome the negative phase.

Zentralblatt für innere Medizin, Leipzig

45: 809-832 (Oct. 4) 1924

*Treatment of Trigeminal Neuralgia. D. Kulenkampff.—p. 809.
*Stomach Function Test. S. Simnitzky.—p. 816.

Treatment of Trigeminal Neuralgia.—Kulenkampff confirms the good results of atropin treatment of trifacial neuralgia in patients with spastic conditions in blood vessels. Härtel's injection method is excellent, but difficult. He believes that periarterial sympathectomy on the carotid artery might be given a trial before retrogasserian resection of the nerve.

Stomach Function Test.—Simnitzky describes his method of fractional aspiration of stomach contents after two test meals given one hour apart. The asthenic type secretes profusely in the beginning, but weakens soon, so that the total acidity is lower in the second hour than in the first. The inert type secretes much more after the second meal, while a normal stomach secretes only a little more than in the first hour.

Casopis lekaruv ceskych, Prague

63: 1337-1368 (Sept. 13) 1924

Denervation of the Kidneys. K. Neuwirt.—p. 1337. Conc'n, p. 1454.
Friedreich's Syndrome in Inherited Syphilis. J. Svejcar.—p. 1342.
*Absorption from Pleural Cavity. J. Jedlicka.—p. 1345. Conc'n, p. 1386.
*Tuberculosis of the Uterus. F. Horalek.—p. 1352. Conc'n, p. 1392.

Absorption from Pleural Cavity.—Jedlicka concludes his experimental study on the absorption of various substances from the pleural cavity. The pressure of gas does not change the conditions except when introduced in very large amounts.

Tuberculosis of the Uterus.—Horalek discusses the relation of tuberculosis of the uterus to that of other sex organs in his twenty cases.

63: 1369-1404 (Sept. 20) 1924

Hernia of Uterus and Adnexa. G. Müller.—p. 1369. Conc'n, p. 1447.
*Suprasymphyseal Suspension of the Uterus. G. Müller.—p. 1372.
Three Neurologic Diseases in One Family. K. Henner.—p. 1377. Conc'n, p. 1451.

Suprasymphyseal Suspension of the Uterus.—Müller uses the inguinal route for resection of the round ligaments, which he fastens with one stitch in the cleft of the insertion of the rectus muscle. The operation is short and simple, and the results in 186 patients at his clinic have been excellent, with the exception of one case in which the operation was done by a beginner.

63: 1405-1440 (Sept. 27) 1924

*Tuberculosis and the Liver. O. Horak.—p. 1405.
*Carbon Dioxid and the Skin. B. Rejsek.—p. 1408.
*Experiments on Ergotism. E. Polak.—p. 1409.
Quincke's Edema. J. Babicek.—p. 1419. Conc'n, p. 1461.
Treatment of Adnexal Inflammations. J. Jerie.—p. 1422. Cont'd.

Tuberculosis and the Liver.—Horak studied the hyperglycemia following injection of levulose and the excretion of indigocarmin by the liver in tuberculous animals. Rabbits showed no changes even with advanced tuberculosis of the lungs. Guinea-pigs with affected livers presented an abnormal sugar curve.

Carbon Dioxid and the Skin.—Rejsek saw no difference in the formation of the urticarial reaction to intracutaneous injections of morphin when keeping the arm in the air or in a carbon dioxid medium. Production of venous stasis inhibited the reaction, which appeared after the free circulation was restored.

Experiments on Ergotism.—Polak produced in rats a gangrene of the end of the tail by ergotamin. He found that extirpation of the abdominal sympathetic shortened considerably the time of its appearance. Epinephrin delayed it.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: 1467-1574 (Sept. 20) 1924

*Tropical Sprue and Pernicious Anemia. A. van der Scheer.—p. 1468.
*Beriberi. N. van der Walle.—p. 1487.
*Ophthalmoscope in Diagnosis of Tuberculosis. G. I. Hoen.—p. 1499.
Total Heart Block from Gumma. Van den Bovenkamp.—p. 1502.
*Syphilimetry. N. van der Walle.—p. 1505.
Visit to the Cajal Institute at Madrid. Fortuyn.—p. 1528.

Sprue and Pernicious Anemia.—Van der Scheer has always found tropical sprue confined to the better situated classes. Too much fat in the intestines seems to be the primary factor, he states, deranging blood formation and destruction and calcium metabolism. The fat may be in normal amounts, or below, but beyond the capacity of the individual to assimilate. The resulting digestive disturbances entail fermentation and secondary diarrhea, with undernutrition and production of toxins, the whole forming a vicious circle leading to a condition resembling pernicious anemia. In many cases the only differential sign is the presence of hydrochloric acid in the stomach, as achylia seems to be a primary factor in pernicious anemia. In sprue, if achylia is found, it subsides as improvement progresses. Regulation of the diet is all that is needed in sprue. Health returns rapidly from the extreme emaciation and weakness, when the proper dietetic measures are instituted, but this may require long tentative dietetic treatment before the optimum is reached. The hemoglobin metabolism is a good guide, estimated by the bilirubin content of the blood serum and the urobilin in the excreta. In one of the typical cases described, 0.322 gm. of bilirubin was the daily average.

Beriberi.—Van der Walle quotes Eijkman's remark in 1921 to the effect that Hollanders gave the world the remedy for beriberi but have kept beriberi. The number of cases of beriberi in the Netherlands East Indies has been gradually declining since 1897, but in 1919 there was a sudden increase. In the garrison at Batavia, for instance, the beriberi patients increased from sixteen to 890. There is some still unknown factor involved besides the antineuritic vitamin, as is evident when beriberi develops in prisons using hand-ground instead of polished rice; from the fact that beriberi becomes more common during the rainy season and drops off during the dry season; and the facts which speak for contagion from beriberi cases, as when acute beriberi developed in the occupant of the bed on each side of a pneumonia patient who had been sent from Batavia to a mountain resort, free from beriberi, to cure him of his beriberi, and had acquired pneumonia en route. The European attendant also developed symptoms suggesting beriberi. Van der Walle regards some microbian invasion as the last straw that upsets the precarious balance of the organism undermined by the alimentary deficiency.

Ophthalmoscopic Differentiation of Miliary Tuberculosis.—Hoen describes a case in which miliary tubercles were seen on the choroid after miliary tuberculosis had been diagnosed from manifestations elsewhere. In a second case, the diagnosis was first rendered possible by discovery of the miliary tubercles in the choroid of the girl aged 6. In a third case, the headache and drowsiness for two months and the emaciation had been ascribed to mental disease at first, and then empyema had been suspected. Discovery of miliary tubercles on the choroid was confirmed by their presence in the lungs as revealed by roentgenoscopy of the chest.

Syphilimetry.—Van der Walle gives an illustrated description of Vernes' method of testing for syphilis by serial precipitation tests. His experience with it has not been encouraging.